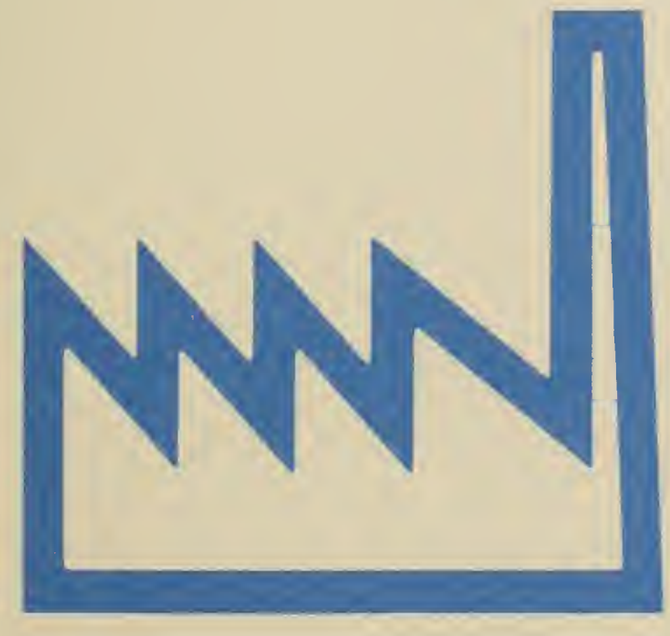
1982 Census of Manufactures

MC82-I-33D

INDUSTRY SERIES

Nonferrous Metal Mills and Miscellaneous Primary Metal Products

Industries 3351, 3353, 3354, 3355, 3356, 3357, 3398, and 3399



U.S. Department of Commerce
BUREAU OF THE CENSUS

The publications
from the 1982 Economic and
Agriculture Censuses are dedicated
to the memory of Shirley Kallek,
Associate Director for Economic Fields.
During her career at the Bureau of the
Census (1955 to 1983), she continually
directed efforts to improve
the timeliness and accuracy of
economic statistics.

1982 Census of Manufactures

MC82-I-33D

INDUSTRY SERIES

Nonferrous Metal Mills and Miscellaneous Primary Metal Products

3351	Copper Rolling and Drawing
3353	Aluminum Sheet, Plate, and Foil
3354	Aluminum Extruded Products
3355	Aluminum Rolling and Drawing, N.E.C.
3356	Nonferrous Rolling and Drawing, N.E.C.
3357	Nonferrous Wire Drawing and Insulating
3398	Metal Heat Treating
3399	Primary Metal Products, N.E.C.

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U.S. Department of Commerce
Malcolm Baldrige, Secretary
Clarence J. Brown, Deputy Secretary
Sidney Jones, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS
John G. Keane,
Director

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If you have any questions concerning the statistics in this report, call (301) 763-7304.

INTRODUCTION

ECONOMIC CENSUSES OVER TIME

The early beginnings of America's industrial output were first measured in the United States in the 1810 Decennial Census and again in 1820, when questions on manufacturing were included with those for population. Beginning with the 1840 Decennial Census, there were enumerations of manufactures and mineral industries at 10-year intervals up to and including the year 1900 for manufactures and 1940 for mineral industries. The latter census was again taken for 1954, 1958, 1963, and 1967.

Because of the increasing dominance of manufacturing in the early 20th century, Congress directed that quinquennial censuses of manufactures be taken beginning in 1905. However, from 1919 through 1939, these censuses were conducted every 2 years. The need for war-related current surveys in the early 1940's postponed the next census of manufactures until 1948 (for 1947). That census was again taken for 1954, 1958, 1963, and 1967.

Retail and wholesale trade data were first collected in 1930, and in 1933 information on selected service industries was added to the data-collection operation. These business censuses, as they were called, were again taken for 1935, 1939 (as part of the 1940 decennial program), 1948, 1954, 1958, 1963, and 1967.

Information on construction industries was obtained first in 1930 and again for 1935 and 1939. Data for the full spectrum of construction industries were not gathered again until 1968 (for 1967).

The need for transportation data to supplement information available from existing governmental or private sources was recognized by Congress in the late 1950's and early 1960's. The census of transportation (consisting of several surveys) was taken first for 1963 and again for 1967.

Since 1967, all of the above censuses have been taken quinquennially as part of the Census Bureau's economic census program. (For the 1977 censuses, the coverage of the service industries was broadened from "selected services" to "all services, except religious organizations and private households." A total of 41 additional four-digit standard industrial classifications[1] (SIC's) in 7 SIC major groups was added to the scope of the census. While most of the industries included for the first time for 1977 were covered again for 1982, some were not, i.e., hospitals; elementary and secondary schools; colleges, universities, and professional schools; junior colleges and technical institutes; labor unions and similar labor organizations; and political organizations.)

The first manufacturing census for an outlying area was conducted in Puerto Rico for the year 1909. Thereafter, with the exception of 1929, a census was taken at 10-year intervals through 1949. The first censuses of retail trade, wholesale trade, and selected service industries in Puerto Rico were conducted for 1939. These censuses also were taken for the years 1949, 1954, 1958, 1963, and 1967. A census of construction industries was introduced first in Puerto Rico for 1967. These censuses of Puerto Rico have been taken since then for the years 1972, 1977, and 1982.

Censuses of manufactures, retail trade, wholesale trade, and selected service industries were conducted in Guam and the Virgin Islands of the United States for 1958, 1963, 1967, 1972, 1977, and 1982. Censuses of mineral industries were taken in the Virgin Islands of the United States for the years 1958, 1963, and 1967 but not since that time. A census of construction industries was also undertaken in these areas for 1972, 1977, and 1982.

Retail trade, wholesale trade, selected service industries, manufacturing, and construction industries were canvassed for the first time in the Northern Mariana Islands in 1983 (for 1982).

For 1982, the economic censuses and agriculture censuses were conducted concurrently.

USES OF THE ECONOMIC CENSUSES

The economic censuses are the major source for facts about the structure and functioning of the Nation's economy and provide essential information for government, business, industry, and the general public. They provide an important part of the framework for such composite measures as the gross national product, input-output measures, indexes of industrial production, and indexes measuring productivity and price levels. Information from the censuses is used to establish sampling frames and as benchmarks for current surveys of business activity, which are essential for measuring short-term economic conditions.

State and local governments use census data to assess business activities within their jurisdictions. The private sector uses the data to forecast general economic conditions; analyze sales performance; lay out sales territories; allocate funds for advertising; decide on locations for new plants, warehouses, or stores; and measure potential markets in terms of size, geographic areas, kinds of business, and kinds of products made or sold.

Following every census, thousands of businesses and other users purchase reports. Likewise, census facts are disseminated widely by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. All 1982 data are available on microfiche from the U.S. Government Printing Office and most data on computer tape from the Census Bureau. Finally, the more than 50 State Data Centers also are suppliers of economic census statistics.

AUTHORITY AND SCOPE OF THE ECONOMIC CENSUSES

The economic censuses are required by law under title 13 of the United States Code, sections 131, 191, and 224, which directs that they be taken at 5-year intervals for the years ending in 2 and 7. The 1982 Economic Censuses covered manufacturing, mining, construction industries, retail trade, wholesale trade, service industries, and selected transportation activities. Special programs also cover minority-owned and women-owned businesses. The next economic censuses are scheduled to be taken in 1988 for the year 1987.

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[1]**Standard Industrial Classification Manual: 1972.** For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. **1977 Supplement.** Stock No. 003-00500176-0.

CENSUS OF MANUFACTURES

General

The 1982 Census of Manufactures is the 31st census of manufactures of the United States. For 1982, it was conducted jointly with the censuses of mineral industries, construction industries, retail and wholesale trades, service industries, selected transportation activities, and minority-owned and women-owned businesses.

This report, from the 1982 Census of Manufactures, is one of a series of 82 industry reports, each of which provides statistics for groups of related industries. Additional separate reports will be issued for each State and on special subjects, such as size of establishments, legal form of organization, and fuels and electric energy consumed.

These separate reports will subsequently be issued as portions of the final census volumes. Volume I, Subject Statistics, will show comparative statistics for industries, States, and standard metropolitan statistical areas. It also will show selected subjects, such as concentration ratios in manufacturing, selected materials consumed, manufacturing activity in government establishments, and water use in manufacturing. Volume II, Industry Statistics, will be a consolidation of reports for the 82 groups of industries showing the same information that is shown in this report. Volume III, Geographic Area Statistics, will contain establishment-based data (number of establishments, employment, payroll, value added by manufacture, and capital expenditures) for each State and its important standard metropolitan statistical areas, counties, and places, by industry groups and important individual industries. Totals for "all manufacturing" will be shown for counties and places with more than 450 manufacturing employees. The introduction to the final volumes will discuss, at greater length, many of the subjects described in this introduction. For example, the volume text will discuss the relationship of value added by manufacture to National income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

Scope of Census and Definition of Manufacturing Industries

The 1982 Census of Manufactures covers all establishments employing one person or more primarily engaged in manufacturing as defined in the 1972 Standard Industrial Classification (SIC) Manual and its 1977 Supplement.[1] This is the system of industrial classification developed over a period of years by experts on classification in government and private industry under the guidance of the Office of Management and Budget. This system of classification is in general use among government agencies as well as organizations outside the government.

The SIC manual defines manufacturing as the mechanical or chemical transformation of inorganic or organic substances into new products. The assembly of component parts of products is also considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials handling equipment.

[1]**Standard Industrial Classification Manual: 1972.** For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. **1977 Supplement.** Stock No. 003-00500176-0.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for the trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

Relationship Between Annual Survey of Manufactures and Census of Manufactures

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is based on a scientifically selected sample of approximately 55,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply detailed information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services.

Establishment Basis of Reporting

The census of manufactures and the annual survey of manufactures are conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1982, as in earlier years, a minimum size limit was set for including establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

Manufacturing Universe and Census Report Forms

The 1982 Census of Manufactures universe includes approximately 345,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in this publication are described below.

1. Small Single-Unit Companies Not Sent a Report Form

In the 1982 Census of Manufactures, approximately 140,000 small single-establishment companies were excused from filing reports. Selection of these small

establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of other Federal agencies. The cutoffs were selected so that these administrative records cases would account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed report forms.

Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material "not specified by kind" (n.s.k.) categories.

The industry classification codes included in the administrative records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes these administrative record cases were given only a two- or three-digit SIC group. For the 1982 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as "not elsewhere classified" (n.e.c.) within the given two- or three-digit industry groups.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassifications have no significant effect on the statistics other than on the number of establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments Sent a Report Form

The 205,000 establishments covered in the mail canvass were divided into three groups:

a. **ASM sample establishments**—This group consisted of approximately 55,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see appendix, Annual Survey of Manufactures).

In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. Results of the ASM inquiries are included in tables 3c and 3d of this report.

The census part of the report form is one of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the approximately 450 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries, as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space was also provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM)**—Approximately 100,000 establishments were included in this group. A variable cutoff, based on administrative records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive one of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-unit establishments (non-ASM)**—This group consisted of approximately 50,000 establishments. For those industries where application of the variable cutoff for administrative records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or "short" form was used. These establishments received one of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same

data were collected on the short as well as the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the values of the n.s.k. categories.

Auxiliaries

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 10,000 separately operated auxiliaries are included in the paperbound geographic area series, the bound volumes of the census of manufactures, and in a report issued as part of the 1982 Enterprise Statistics survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two or more establishments. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include (1) program planning, including sales research and coordination of purchasing, production, and distribution; (2) company purchasing, including general contracts and purchasing methods; (3) company financial policy and accounting, tax accounting, company sales and profit reports, and personnel accounting; (4) general engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations; (5) direction of company personnel matters; and (6) legal and patent matters.

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

Industry Classification of Establishments

Each of the establishments covered in the census was classified in one of approximately 450 manufacturing industries in accordance with the industry definitions in the SIC system. Under this system of classification, an industry is generally defined as a group of establishments producing a single product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of plants must be significant in terms of its number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively became narrower with successive additions of numerical digits. There are 20 major groups (two-digit SIC), 143 industry groups (three-digit SIC), and approximately 450 industries (four-digit SIC). The product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 1,500 classes of products, identified by a five-digit code, and about 11,000 products, identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in making those products. For example, establishments engaged in blast furnace operations, refining of nonferrous metals from ore, or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be "frozen" in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or the change has occurred for two successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see appendix, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The result of these rules covering the switching of plants from one industry classification to another is that, at the aggregate level, some industries comprise different mixes of establishments between survey years, and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is true particularly for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in tables 6a through 6c represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the

composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios, which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that put only the finishing touches on an already highly fabricated item. For example, the refrigeration industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfer of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

Value of Shipments for the Industry Compared With Value of Product Shipments

This industry report shows value of shipments data for industries and products. In tables 1a through 5a, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Product shipments shown in table 6a represent the total value of shipments of products classified as primary to an industry that were shipped by all manufacturing establishments regardless of their industry classification.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this item may be given even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line has been suppressed. However, the suppressed data are included in higher level totals. Additional disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

MICROFICHE AND COMPUTER TAPES

All the data in this report are available on microfiche. Selected data are also available on computer tape.

In addition to selected published data being on computer tape, one major data series, the location of manufacturing plants, will be available only on computer tape. This series presents the number of establishments by employment size class by four-digit SIC industry codes for States, counties, and places of 2,500 inhabitants or more. These data are available for both State and county by industry, and State and place by industry.

Microfiche reports are sold by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Computer tapes are sold by the Data User Services Division, Customer Services (Tapes), Bureau of the Census, Washington, D.C. 20233.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1982 Census of Manufactures may be obtained on computer tape or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Industry Division, Bureau of the Census, Washington, D.C. 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

-	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards on the basis of either the response rate or a consistency review.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

Users' Guide for Locating Statistics

[For explanation of terms, see appendixes]

	Item	Four-digit industry statistics		
		Historical	Operating ratios	By geographic area
1	Number of companies	1a		
2	Number of manufacturing establishments	1a		2
	Employment and payroll:			
3	Number of employees	1a	1b	2
4	Payroll	1a	1b	2
5	Supplemental labor costs			
6	Production workers	1a	1b	2
7	Production-worker hours	1a	1b	2
8	Production-worker wages	1a	1b	2
	Shipments, cost of materials, and value added:			
9	Value of shipments (four-digit)	1a	1b	2
10	Product class shipments (five-digit)			
11	Product shipments (seven-digit)			
12	Value added by manufacture	1a	1b	2
13	Cost of materials	1a	1b	2
14	Fuels and electric energy			
15	Materials consumed by kind			
	Inventories:			
16	Total, end of year	1a		
17	By method of valuation			
18	By stage of fabrication			
	Capital expenditures, assets, rental payments, and purchased services:			
19	New capital expenditures	1a		2
20	Used plant and equipment expenditures			
21	Gross assets			
22	Depreciation			
23	Retirements of buildings and machinery			
24	Rental payments			
25	Purchased services			
	Ratios:			
26	Specialization	1a		
27	Coverage	1a		

*Number of companies with shipments of over $100 thousand.
**Detailed information shown.

in This Report by Table Number

Four-digit industry statistics—Con.				Five-digit product class and seven-digit product statistics				
Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class	
3a					*6a			1
**3a	4	5a						2
3a	4	5a						3
3a	4	5a						4
**3d								5
**3a	4	5a						6
**3a	4	5a						7
3a	4	5a						8
3a	4	5a		5b, 5c				9
				5b, 5c	6a	6b	6c	10
					6a			11
3a	4	5a						12
**3a	4	5a						13
3a, 3d								14
			7					15
3b, 3c	4							16
3b, 3c								17
3b								18
**3a, **3d	4	5a						19
**3a, **3d								20
**3d								21
**3d								22
**3d								23
**3d								24
**3d								25
3a				5b				26
3a				5b				27

Nonferrous Metal Mills and Miscellaneous Primary Metal Products

CONTENTS

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DESCRIPTION OF INDUSTRIES AND SUMMARY OF FINDINGS

NONFERROUS METAL MILLS AND MISCELLANEOUS PRIMARY METAL PRODUCTS

This report shows 1982 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC Code	Title
3351	Copper Rolling and Drawing
3353	Aluminum Sheet, Plate, and Foil
3354	Aluminum Extruded Products
3355	Aluminum Rolling and Drawing, N.E.C.
3356	Nonferrous Rolling and Drawing, N.E.C.
3357	Nonferrous Wire Drawing and Insulating
3398	Metal Heat Treating
3399	Primary Metal Products, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1a-5a) with product statistics (table 6a-1) showing shipments by all industries of the primary products of the specified industry. The extent of the "product mix" is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Small single-unit companies with up to 20 employees (cutoff varied by industry) were excluded from the mail portion of the census. For these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated), data on payrolls and receipts were obtained from administrative records of other government agencies. The remaining statistics were developed from industry averages.

Establishment data were tabulated based on industry definitions contained in the 1972 Standard Industrial Classification (SIC) Manual and its 1977 supplement.[1]

INDUSTRY 3351, COPPER ROLLING AND DRAWING

This industry comprises establishments primarily engaged in the rolling, drawing, and extruding of copper, brass, bronze, and other copper base alloy basic shapes, such as plate, sheet, strip, bar, and tubing. Establishments primarily engaged in the recovering of copper and its alloys from scrap or dross are classified in industry 3341.

In the 1982 Census of Manufactures, Industry 3351, Copper Rolling and Drawing, recorded employment of 23.3 thousand. The total value of shipments for establishments classified in this industry was $3,270 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 26 percent below the 31.3 thousand reported in 1977. The leading States in employment in 1982 were Illinois, Connecticut, Pennsylvania, and New York, accounting for approximately 53 percent of the industry's 1982 employment. These same States were the leaders in 1977, when they accounted for approximately 46 percent of the industry's employment, although there has been some shift in the relative importance of individual States.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3351 shipped $2,796 million of products primary to the industry, $319 million of secondary products, and had $154 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 90 percent (specialization ratio). In 1977, this specialization ratio was 85 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 92 percent. The products primary to industry 3351, no matter in what industry they were produced, appear in table 6a-1 and aggregate to $2,942 million in current prices.

The total cost of materials and services used by establishments classified in the copper rolling and drawing industry amounted to $2,267 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of total value of shipments.

INDUSTRY 3353, ALUMINUM SHEET, PLATE, AND FOIL

This industry comprises establishments primarily engaged in the flat rolling of aluminum base alloy basic shapes, such as

[1] **Standard Industrial Classification Manual: 1972.** For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. **1977 Supplement.** Stock No. 003-005-00176-0.

sheet, plate, and foil, including establishments producing welded tube. Also included are establishments primarily producing similar products by continuous casting.

In the 1982 Census of Manufactures, Industry 3353, Aluminum Sheet, Plate, and Foil, recorded employment of 27.8 thousand. The total value of shipments for establishments classified in this industry was $7,229 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 11 percent below the 31.4 thousand reported in 1977. The leading States in employment in 1982 were Alabama, Tennessee, Iowa, and Indiana, accounting for approximately 50 percent of the industry's 1982 employment. Data for these States have been withheld to avoid disclosing data for individual companies. This represents a shift from 1977 when Illinois, Alabama, Tennessee, and West Virginia accounted for approximately 50 percent of the industry's employment.

Compared with 1981, employment decreased 13 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3353 shipped $6,425 million of products primary to the industry, $364 million of secondary products, and had $440 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 95 percent (specialization ratio). In 1977, this specialization ratio was 92 percent.

Establishments in this industry also accounted for 99 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio also was 99 percent. The products primary to industry 3353, no matter in what industry they were produced, appear in table 6a-1 and aggregate to $6,520 million in current prices.

The total cost of materials and services used by establishments classified in the aluminum sheet, plate, and foil industry amounted to $5,911 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of total value of shipments.

INDUSTRY 3354, ALUMINUM EXTRUDED PRODUCTS

This industry comprises establishments primarily engaged in the extruding of aluminum and aluminum base alloy basic shapes, such as rod and bar, pipe and tube, and tube blooms, including establishments producing tube by drawing.

In the 1982 Census of Manufactures, Industry 3354, Aluminum Extruded Products, recorded employment of 25.4 thousand. The total value of shipments for establishments classified in this industry was $2,673 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 4 percent below the 26.5 thousand reported in 1977. The leading States in employment in 1982 were California, Michigan, Ohio, and Indiana, accounting for approximately 43 percent of the industry's 1982 employment. This represents a shift from 1977 when California, Michigan, Indiana, and Pennsylvania accounted for approximately 45 percent of the industry's employment.

Compared with 1981, employment decreased 4 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3354 shipped $2,319 million of products primary to the industry, $291 million of secondary products, and had $63 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 89 percent (specialization ratio). In 1977, this specialization ratio was 88 percent.

Establishments in this industry also accounted for 91 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 92 percent. The products primary to industry 3354, no matter in what industry they were produced, appear in table 6a-1 and aggregate to $2,551 million in current prices.

The total cost of materials and services used by establishments classified in the aluminum extruded products industry amounted to $1,778 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of total value of shipments.

INDUSTRY 3355, ALUMINUM ROLLING AND DRAWING, N.E.C.

This industry comprises establishments primarily engaged in the rolling, drawing, and the other operations resulting in the production of aluminum ingot, including extrusion ingot, and aluminum and aluminum base alloy basic shapes, not elsewhere classified, such as rolled and continuous cast rod and bar. Establishments primarily engaged in producing aluminum powder, flake, and paste are classified in industry 3399, and

those producing aluminum wire and cable from purchased wire bars, rods, or wire in industry 3357.

In the 1982 Census of Manufactures, Industry 3355, Aluminum Rolling and Drawing, N.E.C., recorded employment of 2.6 thousand. The total value of shipments for establishments classified in this industry was $671 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 45 percent below the 4.7 thousand reported in 1977. The leading States in employment in 1982 were Washington, New York, Alabama, and Tennessee, accounting for approximately 75 percent of the industry's 1982 employment. Data for these States have been withheld to avoid disclosing data for individual companies. This represents a shift from 1977 when New York, Washington, Ohio, and Tennessee accounted for approximately 70 percent of the industry's employment.

Compared with 1981, employment decreased 37 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3355 shipped $506 million of products primary to the industry, $152 million of secondary products, and had $13 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 77 percent (specialization ratio). In 1977, this specialization ratio was 91 percent.

Establishments in this industry also accounted for 7 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 13 percent. The products primary to industry 3355, no matter in what industry they were produced, appear in table 6a-1 and aggregate to $6,959 million in current prices.

The total cost of materials and services used by establishments classified in the aluminum rolling and drawing, n.e.c., industry amounted to $535 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 8 percent of total value of shipments.

INDUSTRY 3356, NONFERROUS ROLLING AND DRAWING, N.E.C.

This industry comprises establishments primarily engaged in the rolling, drawing, and extruding of nonferrous metals other than copper (industry 3351) and aluminum (industries 3353, 3354, and 3355). The products of this industry are produced in the form of basic shapes, such as plate, sheet, strip, bar, and tubing. Establishments primarily engaged in recovering nonferrous metals and alloys from scrap or dross are classified in industry 3341; those manufacturing gold, silver, tin, and other foils, except aluminum in industry 3497; and aluminum foil in industry 3353.

In the 1982 Census of Manufactures, Industry 3356, Nonferrous Rolling and Drawing, N.E.C., recorded employment of 20.0 thousand. The total value of shipments for establishments classified in this industry was $3,418 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 16 percent above the 17.2 thousand reported in 1977. The leading States in employment in 1982 were Massachusetts, Ohio, West Virginia, and Pennsylvania, accounting for approximately 40 percent of the industry's 1982 employment. Data for West Virginia have been withheld to avoid disclosing data for individual companies. This represents a shift from 1977 when West Virginia, Ohio, Pennsylvania, and New York accounted for approximately 45 percent of the industry's employment.

Compared with 1981, employment increased 2 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3356 shipped $3,157 million of products primary to the industry, $197 million of secondary products, and had $64 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 94 percent (specialization ratio). In 1977, this specialization ratio also was 94 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 89 percent. The products primary to industry 3356, no matter in what industry they were produced, appear in table 6a-1 and aggregate to $3,421 million in current prices.

The total cost of materials and services used by establishments classified in the nonferrous rolling and drawing, n.e.c., industry amounted to $2,294 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of total value of shipments.

INDUSTRY 3357, NONFERROUS WIRE DRAWING AND INSULATING

This industry comprises establishments primarily engaged in the drawing, drawing and insulating, and insulating of wire and

cable of nonferrous metals from purchased wire bars, rods, or wire.

In the 1982 Census of Manufactures, Industry 3357, Nonferrous Wire Drawing and Insulating, recorded employment of 67.7 thousand. The total value of shipments for establishments classified in this industry was $8,225 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 2 percent above the 66.3 thousand reported in 1977. The leading States in employment in 1982 were Connecticut, New York, Indiana, and Rhode Island, accounting for approximately 33 percent of the industry's 1982 employment. These same States were the leaders in 1977, when they accounted for approximately 35 percent of the industry's employment, although there has been some shift in the relative importance of individual States.

Compared with 1981, employment increased 2 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3557 shipped $7,753 million of products primary to the industry, $272 million of secondary products, and had $199 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 97 percent (specialization ratio). In 1977, this specialization ratio was 94 percent.

Establishments in this industry also accounted for 88 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 86 percent. The products primary to industry 3357, no matter in what industry they were produced, appear in table 6a-1 and aggregate to $8,809 million in current prices.

The total cost of materials and services used by establishments classified in the nonferrous wire drawing and insulating industry amounted to $5,266 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of total value of shipments.

INDUSTRY 3398, METAL HEAT TREATING

This industry comprises establishments primarily engaged in the heat treating of metal for the trade.

In the 1982 Census of Manufactures, Industry 3398, Metal Heat Treating, recorded employment of 17.7 thousand. The total value of shipments for establishments classified in this industry was $1,128 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 5 percent above the 16.9 thousand reported in 1977. The leading States in employment in 1982 were Michigan, California, Ohio, and Illinois, accounting for approximately 50 percent of the industry's 1982 employment. Data for Illinois have been withheld to avoid disclosing data for individual companies. These same States were the leaders in 1977, when they accounted for approximately 55 percent of the industry's employment, although there has been some shift in the relative importance of individual States.

Compared with 1981, employment decreased 1 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The total cost of materials and services used by establishments classified in the metal heat treating industry amounted to $416 million in current prices.

Establishments of single-unit companies in this industry with up to 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 16 percent of total value of shipments.

INDUSTRY 3399, PRIMARY METAL PRODUCTS, N.E.C.

This industry comprises establishments primarily engaged in the manufacture of primary metal products, not elsewhere classified, such as nonferrous nails, brads, and spikes, and metal powder, flakes, and paste.

In the 1982 Census of Manufactures, Industry 3399, Primary Metal Products, N.E.C., recorded employment of 8.2 thousand. The total value of shipments for establishments classified in this industry was $938 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 9 percent below the 9.0 thousand reported in 1977. The leading States in employment in 1982 were Pennsylvania, New Jersey, Illinois, and Indiana, accounting for approximately 55 percent of the industry's 1982 employment. Data for Illinois and Indiana have been withheld to avoid disclosing data for individual companies. This represents a shift from 1977 when New Jersey, Pennsylvania, Michigan, and New York accounted for approximately 40 percent of the industry's employment.

Compared with 1981, employment decreased 20 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3399 shipped $784 million of products primary to the industry, $117 million of secondary products, and had $37 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 87 percent (specialization ratio). In 1977, this specialization ratio was 94 percent.

Establishments in this industry also accounted for 82 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 70 percent. The products primary to industry 3399, no matter in what industry they were produced, appear in table 6a-1 and aggregate to $959 million in current prices.

The total cost of materials and services used by establishments classified in the primary metal products, n.e.c., industry amounted to $595 million in current prices.

Establishments of single-unit companies in this industry with up to 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of total value of shipments.

Table 1a. Historical Statistics for the Industry: 1982 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization (percent)	Ratios Coverage (percent)
INDUSTRY 3351, COPPER ROLLING AND DRAWING															
1982 Census	101	137	95	23.3	468.2	17.2	32.6	322.9	957.7	2 267.0	3 270.0	123.9	557.1	90	95
1981 ASM	(NA)	(NA)	(NA)	31.2	615.6	23.8	47.5	444.4	1 244.3	3 524.3	4 783.6	104.1	542.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	31.0	573.7	23.6	47.9	411.1	1 108.2	3 723.4	4 839.2	79.5	548.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	35.8	624.1	28.1	57.2	458.3	1 343.8	4 014.4	5 332.5	91.9	586.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	33.3	513.4	25.9	53.7	383.3	1 169.3	2 966.1	4 090.5	71.2	496.3	(NA)	(NA)
1977 Census	101	140	99	31.3	455.5	24.2	50.5	338.7	973.7	3 019.9	4 013.8	64.4	472.1	85	92
1976 ASM	(NA)	(NA)	(NA)	34.1	460.3	26.5	54.9	336.5	979.0	2 843.2	3 779.6	63.2	492.0	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	32.2	383.8	24.0	46.8	270.0	691.7	2 160.1	2 873.7	55.6	431.5	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	37.8	437.8	29.5	61.2	325.3	1 000.2	3 489.7	4 493.7	54.4	415.1	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	39.9	434.9	31.8	67.3	330.6	1 022.1	2 950.4	3 964.6	51.7	379.8	(NA)	(NA)
1972 Census	101	149	117	37.8	383.7	29.9	63.2	288.4	800.3	2 313.8	3 098.8	65.3	327.7	89	93
1971 ASM	(NA)	(NA)	(NA)	36.9	336.5	28.9	58.7	248.9	683.7	2 105.9	2 784.5	34.8	301.1	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	39.0	335.6	30.4	60.8	245.0	690.5	2 371.1	3 094.2	69.4	312.0	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	41.2	354.5	32.7	68.5	267.6	800.2	2 238.3	3 031.6	79.5	311.4	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	39.9	316.2	31.7	64.3	235.3	751.5	1 856.6	2 588.0	73.8	290.8	(NA)	(NA)
1967 Census	86	125	108	40.3	293.9	32.2	64.5	219.0	704.4	1 658.2	2 391.1	68.0	276.3	90	93
INDUSTRY 3353, ALUMINUM SHEET, PLATE, AND FOIL															
1982 Census[5]	40	57	44	27.8	863.7	21.0	40.0	641.1	1 156.2	5 911.3	7 228.7	260.4	2 303.4	95	99
1981 ASM	(NA)	(NA)	(NA)	32.0	950.6	24.7	49.0	717.7	1 893.7	7 241.7	8 866.9	357.7	2 528.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	32.7	867.4	25.4	50.8	658.6	1 752.0	6 651.3	8 122.0	402.5	2 201.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	34.2	814.9	27.0	55.1	636.0	1 871.7	6 198.2	7 990.9	326.0	1 850.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	33.9	733.8	26.9	53.1	567.3	1 853.0	5 612.4	7 349.1	219.1	1 742.6	(NA)	(NA)
1977 Census	30	53	45	31.4	613.5	25.0	50.6	480.1	1 340.6	4 900.5	5 924.0	157.7	1 625.2	92	99
1976 ASM	(NA)	(NA)	(NA)	30.3	529.2	24.1	48.2	413.9	1 176.2	4 266.1	5 353.1	134.8	1 337.1	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	28.1	433.5	21.3	39.9	320.7	975.4	2 947.3	3 720.8	132.2	1 206.0	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	33.0	468.5	26.0	52.8	360.5	1 409.6	3 017.2	4 227.5	108.3	1 001.5	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	33.5	432.2	26.6	56.3	329.8	930.9	2 378.3	3 309.6	52.2	669.9	(NA)	(NA)
1972 Census[6]	25	50	49	31.3	370.7	24.5	51.8	281.5	692.3	2 017.1	2 685.2	90.3	653.2	85	99
INDUSTRY 3354, ALUMINUM EXTRUDED PRODUCTS															
1982 Census	134	193	151	25.4	499.0	19.3	38.0	344.1	859.3	1 778.5	2 673.1	114.7	489.7	89	91
1981 ASM	(NA)	(NA)	(NA)	26.5	501.9	20.2	40.9	349.0	940.9	2 002.4	2 939.0	80.2	482.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	27.6	472.7	21.1	41.9	334.5	951.8	1 933.1	2 870.6	76.2	443.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	28.6	455.7	22.6	46.0	334.2	989.0	1 850.0	2 826.0	63.1	409.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	28.5	411.1	22.8	46.8	303.5	830.9	1 606.8	2 414.0	50.8	389.0	(NA)	(NA)
1977 Census	133	193	146	26.5	355.9	21.2	44.0	264.1	678.6	1 386.1	2 050.0	48.2	337.2	88	92
1976 ASM	(NA)	(NA)	(NA)	24.1	290.5	19.0	38.5	205.4	566.3	1 046.7	1 588.4	30.4	298.6	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	20.8	226.7	16.0	31.7	157.5	464.5	746.5	1 226.4	29.1	238.7	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	27.7	283.7	22.3	44.6	207.4	722.2	961.7	1 657.3	42.9	275.3	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	30.0	280.2	24.0	49.6	207.7	542.8	797.0	1 337.8	39.2	197.3	(NA)	(NA)
1972 Census[6]	133	180	128	27.7	239.2	22.1	45.4	174.1	427.6	662.9	1 078.3	32.6	175.9	85	88
INDUSTRY 3355, ALUMINUM ROLLING AND DRAWING, N.E.C.															
1982 Census	24	27	15	2.6	65.0	1.9	3.5	44.2	30.7	535.3	670.8	5.5	117.3	77	7
1981 ASM	(NA)	(NA)	(NA)	4.9	118.3	3.7	7.3	83.1	490.6	895.4	1 323.2	23.8	380.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	5.1	111.7	3.9	7.7	80.3	545.9	982.7	1 486.8	22.8	267.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	5.1	107.8	3.9	7.9	78.0	383.8	934.9	1 310.6	40.0	214.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	5.0	94.6	3.9	7.6	69.1	239.3	934.5	1 152.5	26.8	194.2	(NA)	(NA)
1977 Census	18	22	15	4.7	78.1	3.6	6.9	56.5	222.8	754.9	1 001.0	16.1	169.5	91	'13
1976 ASM	(NA)	(NA)	(NA)	4.2	65.9	3.1	6.1	47.3	162.7	408.0	546.6	17.1	170.5	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	3.9	54.3	2.8	5.1	36.2	142.1	323.6	431.9	18.0	161.8	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	4.8	62.0	3.8	7.4	45.6	137.1	432.3	542.4	17.8	114.3	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	4.8	58.0	3.9	8.1	42.5	113.6	334.0	430.5	7.9	83.8	(NA)	(NA)
1972 Census[6]	14	16	15	4.6	48.0	3.6	7.2	35.1	57.3	272.2	343.4	9.2	65.7	86	'10
INDUSTRY 3356, NONFERROUS ROLLING AND DRAWING, N.E.C.															
1982 Census	144	169	91	20.0	472.2	12.6	24.0	263.7	993.3	2 293.9	3 418.3	134.4	1 070.2	94	92
1981 ASM	(NA)	(NA)	(NA)	19.7	435.2	13.1	26.1	258.0	1 351.0	2 487.3	3 884.4	145.0	742.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	20.3	420.6	14.0	28.4	256.8	1 387.7	2 610.9	3 922.0	72.0	765.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	19.0	358.3	13.5	28.1	223.8	1 039.8	2 392.9	3 348.7	47.6	656.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	18.2	300.2	12.9	26.4	189.3	756.0	2 061.7	2 747.4	58.9	514.9	(NA)	(NA)
1977 Census	153	173	86	17.2	260.2	12.0	24.7	158.7	569.0	2 000.4	2 596.5	34.3	477.5	94	'89
1976 ASM	(NA)	(NA)	(NA)	17.1	237.2	12.3	24.2	144.6	613.4	1 310.9	1 906.5	71.5	441.5	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	17.9	228.6	12.8	24.4	139.3	584.6	1 295.6	1 826.2	73.3	433.4	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	20.5	238.4	15.1	30.6	154.0	634.8	1 376.7	1 970.6	91.0	366.7	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	20.1	211.3	14.9	30.5	135.7	493.3	1 070.8	1 578.0	29.2	299.1	(NA)	(NA)
1972 Census	136	167	97	18.1	184.2	12.7	25.8	114.1	374.1	892.0	1 244.6	24.3	300.1	84	87
1971 ASM	(NA)	(NA)	(NA)	20.3	185.5	13.5	26.8	109.2	366.4	704.1	1 037.9	37.3	278.3	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	20.4	185.2	14.2	29.8	110.5	367.4	691.0	1 052.7	45.4	234.0	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	21.2	182.5	15.5	31.7	113.4	370.9	687.0	1 095.7	40.7	227.2	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	20.9	168.1	14.4	29.7	98.5	352.5	623.1	977.8	61.8	258.2	(NA)	(NA)
1967 Census	115	142	74	21.3	163.5	14.8	30.9	100.4	351.7	637.2	984.0	58.1	261.1	89	84
INDUSTRY 3357, NONFERROUS WIREDRAWING AND INSULATING															
1982 Census	271	441	341	67.7	1 271.6	50.0	95.7	837.5	2 831.1	5 266.4	8 224.5	294.7	1 297.4	97	88
1981 ASM	(NA)	(NA)	(NA)	66.3	1 191.4	49.9	101.2	811.1	2 977.6	5 997.8	8 888.1	293.4	1 363.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	67.5	1 125.7	51.3	103.6	768.9	2 911.1	6 006.1	8 851.8	230.8	1 266.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	68.2	1 062.2	52.3	108.5	738.3	2 822.7	5 459.1	8 165.9	177.5	1 219.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	68.0	968.7	52.2	108.1	675.9	2 421.6	4 690.9	7 060.4	164.8	1 014.1	(NA)	(NA)
1977 Census	245	421	320	66.3	876.8	50.0	101.8	603.4	2 117.6	4 493.1	6 595.4	139.8	960.7	94	'86
1976 ASM	(NA)	(NA)	(NA)	61.5	756.1	46.3	92.9	518.6	1 862.4	3 778.2	5 579.0	121.6	871.3	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	59.0	680.7	43.5	85.2	450.4	1 731.5	3 128.9	4 908.8	164.6	795.6	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	76.0	820.4	57.6	116.9	553.1	2 387.6	4 568.0	6 866.2	185.9	978.3	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	72.9	735.3	56.0	119.2	516.2	1 767.0	3 642.1	5 375.8	129.7	750.6	(NA)	(NA)

See footnotes at end of table.

Table 1a. Historical Statistics for the Industry: 1982 and Earlier Years—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization (percent)	Coverage (percent)
	INDUSTRY 3357, NONFERROUS WIREDRAWING AND INSULATING—Con.														
1972 Census	206	341	278	68.8	645.6	52.9	110.4	452.2	1 448.0	2 984.4	4 412.3	149.7	657.8	94	89
1971 ASM	(NA)	(NA)	(NA)	63.2	552.2	47.9	98.7	373.5	1 260.5	2 538.5	3 800.6	167.0	607.6	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	67.1	542.3	50.7	106.6	374.7	1 360.0	2 709.1	4 050.0	167.7	607.1	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	68.0	535.3	51.8	110.1	371.5	1 205.3	2 571.0	3 748.2	83.6	579.3	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	66.0	489.0	50.0	105.7	339.8	1 140.1	2 275.4	3 380.3	143.2	525.4	(NA)	(NA)
1967 Census	206	348	275	71.7	501.6	55.3	117.0	352.7	1 330.1	2 304.2	3 591.4	188.3	518.7	93	89
	INDUSTRY 3398, METAL HEAT TREATING														
1982 Census	668	758	289	17.7	324.2	13.5	26.9	216.6	684.5	416.0	1 128.2	42.5	98.1	(7)	(7)
1981 ASM	(NA)	(NA)	(NA)	'17.8	'321.2	'14.0	'28.0	'210.6	'872.2	'370.2	'1 190.6	52.3	'75.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	18.7	310.5	14.6	28.9	204.4	'809.1	'342.6	'1 150.3	42.5	78.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	18.0	283.3	14.2	29.2	191.1	639.2	404.5	1 030.0	42.6	88.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	17.7	262.0	14.0	30.8	180.5	617.2	383.2	995.8	41.7	74.1	(NA)	(NA)
1977 Census	682	753	273	16.9	220.1	13.3	27.6	147.9	466.8	281.9	744.9	42.2	69.0	(7)	(7)
1976 ASM	(NA)	(NA)	(NA)	14.8	187.0	10.8	25.8	124.0	399.9	192.4	592.5	25.6	41.5	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	14.4	185.0	10.4	25.0	121.5	375.4	179.6	556.5	24.3	57.1	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	15.5	179.0	11.5	27.6	121.3	391.3	150.6	539.2	18.8	29.5	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	16.8	171.8	13.2	27.3	116.6	343.2	161.7	504.6	[8]19.5	27.1	(NA)	(NA)
1972 Census[6]	886	952	266	17.2	157.3	13.4	27.4	106.6	310.6	159.1	467.4	23.1	36.2	(NA)	(NA)
	INDUSTRY 3399, PRIMARY METAL PRODUCTS, N.E.C.														
1982 Census	239	249	80	8.2	173.4	5.6	10.6	101.4	313.5	595.2	938.1	51.7	369.6	87	82
1981 ASM	(NA)	(NA)	(NA)	'10.3	'208.7	'7.0	'14.2	'122.5	'456.1	'815.8	'1 285.3	'48.8	'293.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	'9.5	'171.6	'6.7	'14.1	'105.8	'417.0	'816.9	'1 228.7	'37.4	'273.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	'9.5	'160.7	'6.7	'13.9	'97.7	'432.5	'783.1	'1 181.1	'35.8	'243.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	10.2	156.1	7.7	15.6	100.9	367.7	521.9	879.7	38.1	172.3	(NA)	(NA)
1977 Census	406	427	119	9.0	124.4	6.9	13.9	81.2	296.5	454.9	750.6	27.3	149.2	94	70
1976 ASM	(NA)	(NA)	(NA)	9.8	136.5	7.2	13.6	86.4	301.6	348.0	643.0	32.8	123.5	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	9.3	114.1	6.7	12.5	68.8	220.4	282.9	510.8	34.5	119.7	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	9.9	114.4	7.3	14.2	74.2	247.5	361.1	590.4	35.3	112.6	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	9.9	106.5	7.4	14.9	72.6	222.8	264.9	486.2	[8]30.1	78.8	(NA)	(NA)
1972 Census[6]	128	168	105	7.9	75.5	6.0	12.2	50.7	165.0	184.5	348.3	26.9	64.4	92	74

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1967, see 1967 Census of Manufactures, vol. II, table 1 of the Industry chapter.

[2]For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during year.

[4]Effective with the 1982 Economic Censuses, uniform instructions for reporting inventories were introduced for all sector reports. Up to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown above and in historical census of manufactures and annual survey of manufactures publications. Inventories and value added data estimated on a basis comparable to the historical data, using the reported information for 1982, are shown below:

Industries	End-of-1981 inventories (million dollars)	End-of-1982 inventories (million dollars)	1982 value added by manufacture (million dollars)
Industry 3351, Copper rolling and drawing	495.9	475.4	1 029.5
Industry 3353, Aluminum sheet, plate, and foil	2 311.3	2 136.1	1 441.3
Industry 3354, Aluminum extruded products	555.6	454.5	927.1
Industry 3355, Aluminum rolling and drawing, n.e.c.	233.6	117.3	240.3
Industry 3356, Nonferrous rolling and drawing, n.e.c.	859.7	799.6	1 203.4
Industry 3357, Nonferrous wiredrawing and insulating	1 381.6	1 210.6	3 067.4
Industry 3398, Metal heat treating	118.8	89.8	734.6
Industry 3399, Primary metal products, n.e.c.	311.5	276.4	362.7

See Inventories in appendixes for explanation of the difference between end-of-1981 inventory figure shown in table and corresponding figure shown in footnote.

[5]Data for 1982 are not directly comparable to prior-year data due to misclassification of several establishments. The historical data have not been revised because of the possibility of disclosing data for individual companies.

[6]Industry was defined or redefined for 1972 Census of Manufactures, so data are available only for years shown.

[7]Relationships are not meaningful because of predominance of miscellaneous receipts, particularly receipts for contract and commission work on materials owned by others.

[8]Estimate for new capital expenditures has associated standard error of 15 percent or more and may be of limited reliability. Estimates for other data items are of acceptable reliability.

Table 1b. Selected Operating Ratios for the Industry: 1982 and Earlier Years

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3351, COPPER ROLLING AND DRAWING								
1982 Census	20 094	74	1 895	9.90	69	84	41 103	49	29.38
1981 ASM	19 731	76	1 996	9.36	74	87	39 881	49	26.20
1980 ASM	18 506	76	2 030	8.58	77	89	35 748	52	23.14
1979 ASM	17 433	78	2 036	8.01	75	87	37 536	46	23.49
1978 ASM	15 417	78	2 073	7.14	73	85	35 114	44	21.77
1977 Census	14 553	77	2 087	6.71	75	87	31 109	47	19.28
1976 ASM	13 499	78	2 072	6.13	75	87	28 710	47	17.83
1975 ASM	11 919	75	1 950	5.77	75	89	21 481	55	14.78
1974 ASM	11 582	78	2 075	5.32	78	87	26 460	44	16.34
1973 ASM	10 900	80	2 116	4.91	74	85	25 617	43	15.19
1972 Census	10 151	79	2 114	4.56	75	87	21 172	48	12.66
1971 ASM	9 119	78	2 031	4.24	76	88	18 528	49	11.65
1970 ASM	8 605	78	2 000	4.03	77	87	17 705	49	11.36
1969 ASM	8 604	79	2 095	3.91	74	86	19 422	44	11.68
1968 ASM	7 925	79	2 028	3.66	72	84	18 835	42	11.69
1967 Census	7 293	80	2 003	3.40	69	82	17 479	42	10.92
	INDUSTRY 3353, ALUMINUM SHEET, PLATE, AND FOIL								
1982 Census	31 068	76	1 905	16.03	82	94	41 590	75	28.90
1981 ASM	29 706	77	1 984	14.65	82	92	59 178	50	38.65
1980 ASM	26 526	78	2 000	12.96	82	93	53 578	50	34.49
1979 ASM	23 827	79	2 041	11.54	78	88	54 728	44	33.97
1978 ASM	21 646	79	1 974	10.68	76	86	54 661	40	34.90
1977 Census	19 538	80	2 024	9.49	82	92	42 694	46	26.49
1976 ASM	17 465	80	2 000	8.59	80	90	38 818	45	24.40
1975 ASM	15 427	76	1 873	8.04	79	91	34 712	44	24.45
1974 ASM	14 197	79	2 031	6.83	71	82	42 715	33	26.70
1973 ASM	12 901	79	2 117	5.86	72	85	27 788	46	16.53
1972 Census	11 843	78	2 114	5.43	75	89	22 118	54	13.36
	INDUSTRY 3354, ALUMINUM EXTRUDED PRODUCTS								
1982 Census	19 646	76	1 969	9.06	67	85	33 831	58	22.61
1981 ASM	18 940	76	2 025	8.53	68	85	35 506	53	23.00
1980 ASM	17 127	76	1 986	7.98	67	84	34 486	50	22.72
1979 ASM	15 934	79	2 035	7.27	65	82	34 580	46	21.50
1978 ASM	14 425	80	2 053	6.49	67	84	29 154	49	17.75
1977 Census	13 430	80	2 075	6.00	68	85	25 608	52	15.42
1976 ASM	12 054	79	2 026	5.34	66	84	23 498	51	14.71
1975 ASM	10 899	77	1 981	4.97	61	79	22 332	49	14.65
1974 ASM	10 242	81	2 000	4.65	58	75	26 072	39	16.19
1973 ASM	9 340	80	2 067	4.19	60	81	18 093	52	10.94
1972 Census	8 635	80	2 054	3.83	61	84	15 437	56	9.42
	INDUSTRY 3355, ALUMINUM ROLLING AND DRAWING, N.E.C.								
1982 Census	25 000	73	1 842	12.63	80	89	11 808	212	8.77
1981 ASM	24 143	76	1 973	11.38	68	77	100 122	24	67.21
1980 ASM	21 902	76	1 974	10.43	66	74	107 039	20	70.90
1979 ASM	21 137	76	2 026	9.87	71	80	75 255	28	48.58
1978 ASM	18 920	78	1 949	9.09	81	89	47 860	40	31.49
1977 Census	16 617	77	1 917	8.19	75	83	47 404	35	32.29
1976 ASM	15 690	74	1 968	7.75	75	87	38 738	41	26.67
1975 ASM	13 923	72	1 821	7.10	75	87	36 436	38	27.86
1974 ASM	12 917	79	1 947	6.16	80	91	28 563	45	18.53
1973 ASM	12 083	81	2 077	5.25	78	91	23 667	51	14.02
1972 Census	10 435	78	2 000	4.88	79	93	12 457	84	7.96
	INDUSTRY 3356, NONFERROUS ROLLING AND DRAWING, N.E.C.								
1982 Census	23 610	63	1 905	10.99	67	81	49 665	48	41.39
1981 ASM	22 091	66	1 992	9.89	64	75	68 355	32	51.59
1980 ASM	20 719	69	2 029	9.04	67	77	68 360	30	48.86
1979 ASM	18 858	71	2 081	7.96	71	82	54 726	34	37.00
1978 ASM	16 495	71	2 047	7.17	75	86	41 538	40	28.64
1977 Census	15 128	70	2 058	6.43	77	87	33 081	46	23.04
1976 ASM	13 871	72	1 967	5.98	69	81	35 871	39	25.35
1975 ASM	12 771	72	1 906	5.71	71	83	32 659	39	23.96
1974 ASM	11 629	74	2 026	5.03	70	82	30 966	38	20.75
1973 ASM	10 512	74	2 047	4.45	68	81	24 542	43	16.17
1972 Census	10 177	70	2 031	4.42	72	86	20 669	49	14.50
1971 ASM	9 138	67	1 985	4.07	68	86	18 049	51	13.67
1970 ASM	9 078	70	2 099	3.71	66	83	18 010	50	12.33
1969 ASM	8 608	73	2 045	3.58	63	79	17 495	49	11.70
1968 ASM	8 043	69	2 063	3.32	64	81	16 866	48	11.87
1967 Census	7 676	69	2 088	3.25	65	81	16 512	46	11.38
	INDUSTRY 3357, NONFERROUS WIREDRAWING AND INSULATING								
1982 Census	18 783	74	1 914	8.75	64	79	41 818	45	29.58
1981 ASM	17 970	75	2 028	8.01	67	81	44 911	40	29.42
1980 ASM	16 677	76	2 019	7.42	68	81	43 127	39	28.10
1979 ASM	15 575	77	2 075	6.80	67	80	41 389	38	26.02
1978 ASM	14 246	77	2 071	6.25	66	80	35 612	40	22.40
1977 Census	13 225	75	2 036	5.93	68	81	31 940	41	20.80
1976 ASM	12 294	75	2 006	5.58	68	81	30 283	41	20.05
1975 ASM	11 537	74	1 959	5.29	64	78	29 347	39	20.32
1974 ASM	10 795	76	2 030	4.73	67	78	31 416	34	20.42
1973 ASM	10 086	77	2 129	4.33	68	81	24 239	42	14.82

See footnotes at end of table.

Table 1b. Selected Operating Ratios for the Industry: 1982 and Earlier Years—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3357, NONFERROUS WIREDRAWING AND INSULATING—Con.								
1972 Census	9 384	77	2 087	4.10	68	82	21 047	45	13.12
1971 ASM	8 737	76	2 061	3.78	67	81	19 945	44	12.77
1970 ASM	8 082	76	2 103	3.52	67	80	20 268	40	12.76
1969 ASM	7 872	76	2 125	3.37	69	83	17 725	44	10.95
1968 ASM	7 409	76	2 114	3.21	67	82	17 274	43	10.79
1967 Census	6 996	77	2 116	3.01	64	78	18 551	38	11.37
	INDUSTRY 3398, METAL HEAT TREATING								
1982 Census	18 316	76	1 993	8.05	37	66	38 672	47	25.45
1981 ASM	18 045	79	2 000	7.52	31	58	49 000	37	31.15
1980 ASM	16 604	78	1 979	7.07	30	57	43 267	38	28.00
1979 ASM	15 739	79	2 056	6.54	39	67	35 511	44	21.89
1978 ASM	14 802	79	2 200	5.86	38	65	34 870	42	20.04
1977 Census	13 024	79	2 075	5.36	38	67	27 621	47	16.91
1976 ASM	12 635	73	2 389	4.81	32	64	27 020	47	15.50
1975 ASM	12 847	72	2 404	4.86	32	66	26 069	49	15.02
1974 ASM	11 548	74	2 400	4.39	28	61	25 245	46	14.18
1973 ASM	10 226	79	2 068	4.27	32	66	20 429	50	12.57
1972 Census	9 145	78	2 045	3.89	34	68	18 058	51	11.34
	INDUSTRY 3399, PRIMARY METAL PRODUCTS, N.E.C.								
1982 Census	21 146	68	1 893	9.57	63	82	38 232	55	29.58
1981 ASM	20 262	68	2 029	8.63	63	80	44 282	46	32.12
1980 ASM	18 063	71	2 104	7.50	67	81	43 895	41	29.57
1979 ASM	16 916	71	2 075	7.03	66	80	45 526	37	31.12
1978 ASM	15 304	75	2 026	6.47	59	77	36 049	42	23.57
1977 Census	13 822	77	2 014	5.84	61	77	32 944	42	21.33
1976 ASM	13 929	73	1 889	6.35	54	75	30 776	45	22.18
1975 ASM	12 269	72	1 866	5.50	55	78	23 699	52	17.63
1974 ASM	11 556	74	1 945	5.23	61	81	25 000	46	17.43
1973 ASM	10 758	75	2 014	4.87	54	76	22 505	48	14.95
1972 Census	9 557	76	2 033	4.16	53	75	20 886	46	13.52

Note: For qualifications of data, see footnotes on table 1a.

Table 2. Industry Statistics for Selected States: 1982 and 1977

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982											1977	
		All establishments[2]		All employees		Production workers							
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[3] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[3] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3351, COPPER ROLLING AND DRAWING														
United States	-	137	95	23.3	468.2	17.2	32.6	322.9	957.7	2 267.0	3 270.0	123.9	31.3	973.7
Alabama	-	4	3	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Arkansas	-	2	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
California	-	6	5	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	30.1
Connecticut	-	20	18	3.1	60.8	2.2	4.1	40.4	109.8	203.8	321.4	9.7	4.3	149.2
Illinois	-	8	5	4.0	94.9	2.8	5.0	62.8	192.7	466.6	670.2	15.1	3.9	140.6
Indiana	E1	6	5	1.8	34.2	1.3	2.4	25.2	69.3	222.0	296.0	(D)	EE	(D)
Kentucky	-	3	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	-	7	6	.5	7.7	.3	.7	5.6	16.5	20.6	36.4	2.0	CC	(D)
Michigan	E1	9	7	.9	15.9	.7	1.3	10.8	33.7	105.1	139.7	(D)	1.8	48.5
Mississippi	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
New Jersey	-	8	7	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.8	57.9
New York	-	10	7	2.3	42.2	1.7	3.1	29.6	97.0	189.9	295.6	40.2	2.6	77.8
North Carolina	-	3	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	-	7	6	1.0	23.8	.7	1.5	16.4	49.3	128.8	167.9	(D)	1.9	40.3
Oklahoma	-	3	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Pennsylvania	-	15	10	3.0	67.4	2.0	4.4	45.9	143.0	246.5	409.2	6.4	3.6	133.8
Texas	-	6	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Virginia	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	-	2	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.7	59.1

See footnotes at end of table.

Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982												1977	
		All establishments[2]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[3] (1,000)	Value added by manufacture (million dollars)
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[3] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						
INDUSTRY 3351, COPPER ROLLING AND DRAWING—Con.														
Industry 3351-21, Establishments With Casting Departments														
United States	-	**42**	**41**	**15.4**	**319.9**	**11.2**	**21.3**	**218.6**	**596.4**	**1 260.3**	**1 891.0**	**83.7**	**22.6**	**720.9**
Alabama	-	1	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Arkansas	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
California	-	4	4	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	27.3
Connecticut	-	7	7	2.0	39.6	1.5	2.6	27.0	58.5	121.2	186.4	3.8	3.4	104.2
Illinois	-	4	4	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.9	139.5
Indiana	-	3	3	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Massachusetts	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	-	4	4	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Mississippi	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
New York	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
North Carolina	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	-	3	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Oklahoma	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Pennsylvania	-	5	5	2.2	50.0	1.4	3.2	34.0	77.6	150.9	245.5	3.5	2.8	105.9
Virginia	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	-	2	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.7	59.1
Industry 3351-22, Establishments Without Casting Departments														
United States	-	**95**	**54**	**7.9**	**148.3**	**6.0**	**11.3**	**104.2**	**361.3**	**1 006.7**	**1 379.0**	**40.2**	**8.7**	**252.8**
Alabama	E5	3	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	-	13	11	1.1	21.3	.8	1.5	13.3	51.3	82.6	135.0	5.9	.9	45.0
Illinois	E1	4	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Indiana	E2	3	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Kentucky	-	3	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	-	6	5	AA	(D)	(D)	(D)	(D)	(D	(D)	(D)	(D)	CC	(D)
Michigan	E7	5	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
New Jersey	-	7	7	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
New York	-	8	5	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Ohio	-	4	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Pennsylvania	-	10	5	.8	17.5	.6	1.1	11.9	65.4	95.7	163.8	2.9	.7	27.9
Texas	-	6	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
INDUSTRY 3353, ALUMINUM SHEET, PLATE, AND FOIL														
United States	-	**57**	**44**	**27.8**	**863.7**	**21.0**	**40.0**	**641.1**	**1 156.2**	**5 911.3**	**7 228.7**	**260.4**	**31.4**	**1 293.8**
Alabama	-	3	3	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Arkansas	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
California	-	8	4	.5	12.8	.4	.6	9.6	28.5	70.0	102.2	(D)	CC	(D)
Connecticut	-	2	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Illinois	-	4	3	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.8	158.2
Indiana	-	2	2	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Iowa	-	2	2	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Kentucky	-	3	3	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.0	75.1
Michigan	-	2	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
New Jersey	-	3	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
New York	-	3	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
North Carolina	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Ohio	-	3	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Pennsylvania	-	2	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
South Carolina	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	-	4	4	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Washington	-	1	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
West Virginia	-	2	2	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Industry 3353-11, Establishments With Melting Facilities														
United States	-	**26**	**26**	**24.0**	**764.3**	**18.3**	**34.9**	**571.5**	**1 009.2**	**5 293.4**	**6 442.2**	**230.2**	**22.4**	**866.9**
Alabama	-	3	3	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Arkansas	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Indiana	-	2	2	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Iowa	-	2	2	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Kentucky	-	1	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	-	1	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
North Carolina	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Ohio	-	1	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	-	2	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
South Carolina	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	-	3	3	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Washington	-	1	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
West Virginia	-	1	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)

See footnotes at end of table.

Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982											1977	
		All establishments[2]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[3] (1,000)	Value added by manufacture (million dollars)
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[3] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						
INDUSTRY 3353, ALUMINUM SHEET, PLATE, AND FOIL—Con.														
Industry 3353-12, Establishments Without Melting Facilities														
United States	-	31	18	3.8	99.4	2.7	5.1	69.6	147.1	617.9	786.5	30.2	8.8	421.0
California	-	6	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Connecticut	-	2	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Illinois	-	3	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Kentucky	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.0	75.1
Michigan	-	2	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	-	3	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Ohio	-	2	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
West Virginia	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
INDUSTRY 3354, ALUMINUM EXTRUDED PRODUCTS														
United States	-	193	151	25.4	499.0	19.3	38.0	344.1	859.3	1 778.5	2 673.1	114.7	26.5	678.6
Arizona	-	4	3	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Arkansas	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
California	-	31	19	4.0	94.1	3.0	5.8	63.4	118.7	298.5	422.7	48.4	4.2	132.2
Florida	-	10	6	.7	10.5	.6	1.1	7.6	26.5	69.6	93.2	2.4	.3	8.0
Georgia	-	9	6	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Illinois	-	8	6	1.2	24.0	.9	1.7	17.2	37.4	77.1	113.1	2.2	.9	27.5
Indiana	-	12	10	2.2	53.4	1.6	3.0	37.1	79.0	165.9	248.7	10.9	2.7	75.5
Kentucky	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Massachusetts	-	4	4	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Michigan	-	14	12	2.4	49.7	1.8	3.5	35.1	80.0	117.9	204.2	3.3	3.3	74.4
Minnesota	-	3	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	4.9
Mississippi	-	3	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	13.2
Missouri	-	3	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	8.3
New Jersey	-	10	9	1.6	26.5	1.3	2.7	17.7	41.2	77.9	118.9	(D)	1.5	29.9
New York	-	7	5	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	27.6
North Carolina	-	4	4	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Ohio	-	20	20	2.3	49.8	1.8	3.4	34.3	69.4	200.1	279.2	4.3	1.5	42.5
Oregon	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	-	6	5	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
South Carolina	-	3	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Tennessee	-	3	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Texas	-	10	9	1.1	15.5	.9	1.6	11.2	16.8	95.1	116.6	3.5	.8	18.9
Virginia	-	4	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Industry 3354-11, Establishments With Melting Facilities														
United States	-	41	40	11.5	262.5	8.6	17.0	184.2	387.3	821.7	1 240.2	68.0	8.9	245.8
Arizona	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Arkansas	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	-	7	6	2.6	67.2	1.9	3.8	45.9	54.1	189.0	248.9	(D)	2.8	90.9
Florida	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Georgia	-	3	3	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Illinois	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Indiana	-	1	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Michigan	-	3	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Mississippi	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	-	6	6	1.1	28.8	.8	1.5	19.9	32.9	108.8	151.0	(D)	BB	(D)
Pennsylvania	-	3	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Tennessee	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Industry 3354-12, Establishments Without Melting Facilities														
United States	-	152	111	13.9	236.5	10.7	21.0	159.9	472.0	956.9	1 432.9	46.6	17.6	432.8
Arizona	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E1	24	13	1.4	26.9	1.1	2.1	17.5	64.6	109.4	173.8	(D)	1.5	41.2
Florida	-	9	5	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	-	6	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Illinois	-	6	4	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	27.5
Indiana	-	11	9	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Kentucky	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Massachusetts	-	4	4	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Michigan	-	11	9	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Minnesota	-	3	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	4.9
Mississippi	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	13.2
New Jersey	-	10	9	1.6	26.5	1.3	2.7	17.7	41.2	77.9	118.9	(D)	1.5	28.9
New York	-	7	5	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	15.6
North Carolina	-	4	4	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Ohio	-	14	14	1.2	21.0	1.0	1.9	14.3	36.5	91.3	128.2	1.3	EE	(D)
Oregon	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	-	3	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
South Carolina	-	2	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	6.2
Texas	-	8	7	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Virginia	-	2	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)

See footnotes at end of table.

Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982											1977	
		All establishments[2]		All employees		Production workers							
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[3] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[3] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3355, ALUMINUM ROLLING AND DRAWING, N.E.C.														
United States	-	**27**	**15**	**2.6**	**65.0**	**1.9**	**3.5**	**44.2**	**30.7**	**535.3**	**670.8**	**5.5**	**4.7**	**222.8**
Alabama	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Kentucky	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
New York	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Tennessee	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Washington	-	3	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Industry 3355-11, Establishments With Melting Facilities														
United States	-	**5**	**5**	.9	**21.0**	.7	**1.2**	**13.9**	**52.9**	**146.2**	**208.1**	**2.0**	3.7	**184.2**
Tennessee	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Washington	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Industry 3355-12, Establishments Without Melting Facilities														
United States	E1	**22**	**10**	**1.7**	**44.1**	**1.3**	**2.3**	**30.3**	**-22.1**	**389.0**	**462.7**	**3.5**	**1.0**	38.6
Alabama	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Kentucky	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New York	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
INDUSTRY 3356, NONFERROUS ROLLING AND DRAWING, N.E.C.														
United States	-	**169**	**91**	**20.0**	**472.2**	**12.6**	**24.0**	**263.7**	993.3	**2 293.9**	**3 418.3**	**134.4**	17.9	**599.8**
California	-	15	7	.6	12.1	.4	.8	8.0	34.5	52.4	86.4	(D)	.6	19.7
Connecticut	-	5	4	.7	17.3	.5	.9	10.6	39.8	79.9	120.8	(D)	CC	(D)
Illinois	E1	8	5	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	18.4
Indiana	-	2	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Louisiana	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maine	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Massachusetts	-	7	6	2.3	49.3	1.7	3.4	31.3	109.1	721.7	838.3	9.7	1.2	30.6
Michigan	-	11	4	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Nevada	-	3	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
New Jersey	-	17	10	1.5	30.4	1.0	1.8	18.0	38.7	237.8	290.4	(D)	EE	(D)
New York	E1	21	11	1.5	30.4	.9	1.7	15.2	55.9	247.8	312.4	(D)	EE	(D)
North Carolina	-	4	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Ohio	-	14	5	2.0	57.4	1.3	2.5	34.7	194.7	206.7	411.5	22.9	2.3	78.3
Oregon	-	3	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Pennsylvania	-	19	10	1.7	36.7	1.2	2.4	23.9	75.5	120.7	204.7	(D)	1.8	68.6
South Carolina	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Utah	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	-	3	3	.5	13.1	.4	.7	7.4	29.6	42.5	73.5	(D)	BB	(D)
West Virginia	-	1	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
INDUSTRY 3357, NONFERROUS WIREDRAWING AND INSULATING														
United States	-	**441**	**341**	**67.7**	**1 271.6**	**50.0**	**95.7**	**837.5**	**2 831.1**	**5 266.4**	**8 224.5**	**294.7**	66.3	**2 117.6**
Alabama	-	4	3	.4	6.4	.3	.5	5.0	-1.5	81.0	77.8	(D)	BB	(D)
Arizona	-	7	6	2.6	59.0	2.0	3.5	43.0	183.7	238.5	420.6	(D)	EE	(D)
Arkansas	-	9	9	1.4	24.3	1.0	2.1	17.2	51.4	119.8	178.3	1.8	1.2	27.9
California	-	49	26	2.8	49.4	2.0	4.2	31.0	102.2	170.0	280.8	12.7	3.4	90.1
Connecticut	-	37	27	6.1	112.1	4.1	7.6	61.3	192.6	261.5	455.2	32.0	5.0	108.0
Delaware	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Florida	E1	6	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Georgia	-	10	10	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Illinois	-	30	23	3.3	61.6	2.4	4.5	37.8	123.3	225.8	355.5	(D)	4.5	153.0
Indiana	-	25	23	5.3	96.5	3.8	7.3	68.1	239.4	485.8	735.2	15.7	6.0	186.1
Kansas	-	3	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Kentucky	-	12	11	2.0	33.7	1.6	3.2	23.5	64.8	231.4	298.5	3.6	2.0	76.9
Louisiana	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Maryland	-	2	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Massachusetts	-	40	32	5.0	90.8	3.9	7.7	59.9	189.7	248.4	440.9	20.2	4.9	118.1
Michigan	-	12	10	1.3	24.1	1.0	1.9	16.0	39.2	105.0	155.3	4.7	2.5	88.7
Mississippi	-	6	6	.7	11.0	.6	1.2	7.8	42.3	63.1	108.4	8.0	CC	(D)
Missouri	-	5	5	.5	9.3	.4	.7	6.2	13.5	75.5	91.1	3.9	.7	30.6
Nebraska	-	2	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
New Hampshire	-	5	5	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
New Jersey	-	25	20	3.2	62.3	2.3	4.7	39.8	138.6	242.7	385.1	(D)	4.2	146.9
New York	E1	39	31	5.9	107.3	4.4	8.2	70.6	221.7	459.5	705.7	38.4	6.2	159.4
North Carolina	-	14	13	2.5	40.8	1.9	3.7	27.2	137.1	225.7	363.7	11.9	1.5	58.8
Ohio	-	14	8	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	15.8
Pennsylvania	-	17	14	2.2	37.6	1.7	3.2	25.2	83.4	200.3	293.6	12.3	3.5	90.0
Rhode Island	-	17	16	5.2	83.2	3.9	7.6	55.6	150.1	337.5	514.2	9.4	5.5	155.0
South Carolina	-	5	5	1.2	18.1	1.0	1.8	13.8	42.0	70.5	112.9	(D)	CC	(D)
Tennessee	-	2	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Texas	-	16	9	2.4	43.5	1.6	3.3	26.9	88.4	207.6	296.9	16.2	1.5	67.0
Vermont	-	7	5	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Virginia	-	6	5	1.4	27.9	1.1	2.0	17.1	65.2	118.9	174.5	(D)	CC	(D)

See footnotes at end of table.

Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982											1977	
		All establishments[2]		All employees		Production workers							
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[3] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[3] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3357, NONFERROUS WIREDRAWING AND INSULATING—Con.														
Industry 3357-11, With Rod Mill														
United States	-	38	38	8.8	155.7	6.5	12.1	107.3	294.5	843.6	1 152.3	32.6	12.3	383.9
Alabama	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	-	3	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.4	69.8
Indiana	-	8	8	2.6	42.8	1.9	3.5	34.2	82.5	227.1	309.2	8.3	3.3	51.2
Kansas	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Massachusetts	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Michigan	-	3	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	38.8
New Jersey	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
New York	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Ohio	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Pennsylvania	-	3	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Rhode Island	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Texas	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Industry 3357-12, Without Rod Mill or Insulating														
United States	-	28	24	4.9	85.4	4.0	7.8	64.6	147.6	382.2	536.3	14.8	4.1	121.9
Alabama	-	2	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Connecticut	-	4	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	10.2
Massachusetts	E6	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Michigan	-	3	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
New York	-	3	3	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Pennsylvania	-	2	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Rhode Island	-	3	3	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Industry 3357-13, Without Rod Mill but With Insulation														
United States	-	95	93	25.6	530.9	18.8	36.6	352.4	1 193.1	2 143.3	3 408.8	125.0	30.8	1 106.9
Arkansas	-	3	3	.6	11.2	.5	.9	8.3	28.7	59.8	88.2	1.1	BB	(D)
California	-	8	8	1.4	25.0	1.0	2.1	16.7	57.1	120.1	179.1	7.3	1.2	39.4
Connecticut	-	7	6	1.1	21.4	.7	1.4	11.9	29.1	53.6	84.3	(D)	2.4	46.6
Florida	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	E1	5	5	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Illinois	-	8	8	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.7	49.4
Indiana	-	5	5	1.3	28.4	1.0	1.9	20.0	38.0	109.1	156.3	4.0	1.7	74.4
Kansas	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Kentucky	-	7	7	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Maryland	-	2	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Massachusetts	-	6	5	1.1	20.5	.8	1.6	13.4	38.0	56.7	95.9	3.8	1.5	41.2
Michigan	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.4	35.9
Mississippi	-	3	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Missouri	-	4	4	.5	8.9	.4	.7	5.9	12.2	71.4	85.7	3.9	CC	(D)
Nebraska	-	1	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
New Hampshire	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
New Jersey	-	5	5	.9	19.3	.7	1.6	14.3	44.0	65.7	114.3	(D)	1.7	52.5
New York	-	5	5	1.3	21.8	1.0	1.7	13.7	45.4	114.0	171.5	1.1	3.6	101.1
North Carolina	-	3	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Pennsylvania	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	11.6
Rhode Island	-	5	5	1.6	28.7	1.1	2.3	16.4	47.3	96.8	159.8	3.8	2.5	60.4
South Carolina	-	3	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Texas	-	4	4	1.5	28.4	1.1	2.3	20.4	59.1	153.5	211.0	8.2	EE	(D)
Virginia	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982											1977	
		All establishments[2]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[3] (1,000)	Value added by manufacture (million dollars)
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[3] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						
INDUSTRY 3357, NONFERROUS WIREDRAWING AND INSULATING—Con.														
Industry 3357-14, Without Wiredrawing														
United States	-	**280**	**186**	**28.5**	**499.7**	**20.7**	**39.2**	**313.2**	**1 195.8**	**1 897.2**	**3 127.2**	**122.2**	**18.6**	**495.3**
Arizona	-	6	6	2.5	58.7	2.0	3.5	42.7	182.8	236.6	417.8	(D)	BB	(D)
Arkansas	-	6	6	.8	13.1	.6	1.2	8.9	22.6	60.1	90.0	.6	CC	(D)
California	E2	41	18	1.4	24.4	1.0	2.0	14.3	45.1	49.9	101.7	5.4	1.2	28.1
Connecticut	-	23	15	3.4	63.4	2.3	4.4	33.7	119.7	129.8	247.7	18.3	2.0	51.1
Delaware	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Georgia	-	3	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	E2	18	12	1.1	14.8	.8	1.4	9.4	26.7	55.6	83.0	(D)	1.4	30.0
Indiana	-	11	9	1.4	24.6	.9	1.8	13.2	117.9	141.9	260.1	3.3	.9	57.2
Massachusetts	-	30	23	2.8	49.9	2.1	4.3	31.9	111.6	145.4	258.4	12.2	2.7	52.4
Michigan	-	5	3	.3	4.8	.1	.3	1.8	.2	14.3	20.9	(D)	(NA)	(NA)
Mississippi	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
New Hampshire	-	2	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
New Jersey	-	19	14	2.1	40.8	1.4	2.8	23.3	92.6	167.9	259.5	(D)	1.4	55.0
New York	E2	29	21	3.3	58.8	2.3	4.5	37.4	115.7	241.7	368.5	27.5	1.1	27.7
North Carolina	-	9	8	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	14.8
Ohio	E2	11	5	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Pennsylvania	-	11	9	1.4	24.2	1.1	2.0	14.9	39.1	70.4	118.8	10.3	1.5	33.0
Rhode Island	E1	8	7	1.4	18.1	1.2	2.1	13.5	35.7	77.7	115.7	2.9	CC	(D)
South Carolina	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Texas	-	11	4	.6	11.2	.3	.6	5.0	24.3	19.9	43.7	(D)	BB	(D)
Vermont	-	6	4	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Virginia	-	3	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3398, METAL HEAT TREATING														
United States	**E1**	**758**	**289**	**17.7**	**324.2**	**13.5**	**26.9**	**216.6**	**684.5**	**416.0**	**1 128.2**	**42.5**	**16.9**	**466.8**
Arizona	E6	4	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E2	90	36	2.1	39.3	1.6	3.3	26.4	84.8	32.1	117.4	4.6	2.1	51.3
Connecticut	E1	34	10	.8	14.6	.6	1.2	9.5	28.8	15.6	44.4	1.9	.5	14.5
Florida	-	7	3	.2	2.3	.1	.2	1.8	4.8	1.6	6.5	.1	(NA)	(NA)
Illinois	E1	56	28	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.8	48.9
Indiana	-	26	11	.6	12.3	.4	.9	6.9	24.6	43.4	76.7	(D)	.7	26.7
Massachusetts	E1	26	11	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Michigan	E2	129	49	2.9	59.5	2.2	4.6	39.9	110.2	49.2	159.4	8.2	3.2	90.3
Minnesota	-	15	9	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Missouri	-	9	4	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	6.8
New Jersey	E1	28	14	.7	12.7	.5	1.0	7.8	27.2	8.3	35.4	2.1	.6	14.4
New York	E1	35	16	1.4	25.4	1.1	2.3	17.8	68.1	23.9	91.6	3.8	1.2	43.4
North Carolina	E2	11	3	.2	2.3	.1	.2	1.3	4.5	1.8	6.3	(D)	(NA)	(NA)
Ohio	-	93	33	2.0	36.8	1.5	2.7	23.6	80.5	133.4	230.3	3.2	2.2	57.5
Oklahoma	-	9	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	E2	38	12	.7	11.7	.5	1.0	7.5	21.8	7.4	29.4	.8	.8	20.5
Rhode Island	E4	12	4	.2	3.2	.2	.4	2.4	6.5	2.2	8.8	.5	.2	3.8
Texas	E2	43	19	1.2	20.9	1.0	1.9	14.0	48.6	21.9	70.7	(D)	.8	21.6
Wisconsin	E2	23	8	.6	9.4	.5	.9	6.4	19.1	6.2	25.5	.8	.4	14.6
INDUSTRY 3399, PRIMARY METAL PRODUCTS, N.E.C.														
United States	-	**249**	**80**	**8.2**	**173.4**	**5.6**	**10.6**	**101.4**	**313.5**	**595.2**	**938.1**	**51.7**	**9.0**	**296.5**
Alabama	-	5	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	7.6
California	E2	27	8	.4	8.9	.3	.7	6.2	14.8	14.4	29.4	2.5	.6	14.2
Connecticut	E1	11	4	.4	6.5	.3	.5	4.5	11.6	14.2	26.2	.5	.5	16.9
Illinois	-	7	4	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	8.7
Indiana	-	12	6	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	14.7
Kentucky	-	3	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Massachusetts	-	8	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Michigan	-	19	8	.4	8.7	.3	.5	5.2	18.4	24.6	43.3	1.0	.7	19.2
New Jersey	-	22	10	1.0	23.9	.6	1.1	11.4	47.9	67.8	119.2	8.0	1.3	58.2
New York	-	22	7	.5	9.1	.3	.6	4.2	28.6	26.2	54.1	2.0	.6	17.6
Ohio	-	17	6	.4	8.6	.3	.7	6.5	1.3	32.1	34.3	2.5	.5	16.3
Oklahoma	-	4	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	-	24	8	2.2	50.2	1.4	2.6	27.0	70.6	135.9	219.7	17.2	1.0	37.6

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at time data were tabulated. The following symbols are shown for those States where estimated data based on administrative records data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Includes establishments with payroll at any time during year.

[3]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 150 employees or more, number of establishments is shown and employment size range is indicated by one of the following symbols: AA—150 to 249 employees; BB—250 to 499 employees; CC—500 to 999 employees; EE—1,000 to 2,499 employees; FF—2,500 employees or more.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years in which respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, data for inventories and value added by manufacture are not comparable to prior-year data.

Table 3a. **Summary Statistics for the Industry: 1982**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Copper rolling and drawing (SIC 3351)			Aluminum sheet, plate, and foil (SIC 3353)		
	Total	Establishments with casting departments (SIC 3351-21)	Establishments without casting departments (SIC 3351-22)	Total	Establishments with melting facilities (SIC 3353-11)	Establishments without melting facilities (SIC 3353-12)
Companies[1] ---- number	101	(NA)	(NA)	40	(NA)	(NA)
All establishments[2] ---- do	137	42	95	57	26	31
With 1 to 19 employees ---- do	42	1	41	13	-	13
With 20 to 99 employees ---- do	42	9	33	13	3	10
With 100 employees or more ---- do	53	32	21	31	23	8
All employees:						
Average for year ---- 1,000	23.3	15.4	7.9	27.8	24.0	3.8
Annual payroll[3] ---- mil. dol.	468.2	319.9	148.3	863.7	764.3	99.4
Production workers:						
Average for year ---- 1,000	17.2	11.2	6.0	21.0	18.3	2.7
March ---- do	18.2	11.8	6.5	21.5	18.4	3.2
May ---- do	17.1	10.9	6.2	21.2	18.4	2.7
August ---- do	17.4	11.4	5.9	21.1	18.6	2.5
November ---- do	16.0	10.6	5.3	20.2	17.8	2.4
Hours ---- millions	32.6	21.3	11.3	40.0	34.9	5.1
January to March ---- do	8.8	5.8	3.0	9.9	8.6	1.3
April to June ---- do	8.6	5.6	3.0	10.2	8.8	1.4
July to September ---- do	7.9	5.3	2.7	10.1	8.9	1.2
October to December ---- do	7.2	4.7	2.5	9.8	8.6	1.2
Wages ---- mil. dol.	322.9	218.6	104.2	641.1	571.5	69.6
Value added by manufacture[4] ---- do	957.7	596.4	361.3	1 156.2	1 009.2	147.1
Cost of materials, etc.[5] ---- do	2 267.0	1 260.3	1 006.7	5 911.3	5 293.4	617.9
Materials, parts, containers, etc., consumed ---- do	2 078.4	1 118.5	960.0	5 439.8	4 867.6	572.2
Resales ---- do	24.1	20.3	3.8	(D)	(D)	(D)
Fuels consumed[6] ---- do	51.5	37.9	13.6	192.5	177.8	14.7
Purchased electric energy[7] ---- do	79.9	60.1	19.8	128.8	111.6	17.2
Contract work ---- do	33.1	23.6	9.5	(D)	(D)	(D)
Value of shipments, including resales ---- do	3 270.0	1 891.0	1 379.0	7 228.7	6 442.2	786.5
Value of resales ---- do	23.9	20.1	3.8	(D)	(D)	(D)
Manufacturers' inventories (see tables 3b and 3c)						
Capital expenditures for plant and equipment[8] ---- do	130.8	85.5	45.2	267.2	236.7	30.5
New capital expenditures ---- do	123.9	83.7	40.2	260.4	230.2	30.2
New buildings and other structures ---- do	16.3	7.9	8.4	24.2	23.6	.5
New machinery and equipment ---- do	107.6	75.8	31.8	236.2	206.6	29.6
Used capital expenditures ---- do	7.0	1.9	5.1	6.9	6.5	.4
Primary product specialization ratio[9] ---- percent	90	(NA)	(NA)	95	(NA)	(NA)
Coverage ratio[10] ---- do	95	(NA)	(NA)	99	(NA)	(NA)

Item	Aluminum extruded products (SIC 3354)			Aluminum rolling and drawing, n.e.c. (SIC 3355)			Nonferrous rolling and drawing, n.e.c. (SIC 3356)
	Total	Establishments with melting facilities (SIC 3354-11)	Establishments without melting facilities (SIC 3354-12)	Total	Establishments with melting facilities (SIC 3355-11)	Establishments without melting facilities (SIC 3355-12)	
Companies[1] ---- number	134	(NA)	(NA)	24	(NA)	(NA)	144
All establishments[2] ---- do	193	41	152	27	5	22	169
With 1 to 19 employees ---- do	42	1	41	12	-	12	78
With 20 to 99 employees ---- do	74	13	61	7	1	6	54
With 100 employees or more ---- do	77	27	50	8	4	4	37
All employees:							
Average for year ---- 1,000	25.4	11.5	13.9	2.6	.9	1.7	20.0
Annual payroll[3] ---- mil. dol.	499.0	262.5	236.5	65.0	21.0	44.1	472.2
Production workers:							
Average for year ---- 1,000	19.3	8.6	10.7	1.9	.7	1.3	12.6
March ---- do	19.3	8.8	10.5	2.0	.7	1.3	13.5
May ---- do	19.6	8.7	10.8	2.0	.7	1.3	12.8
August ---- do	19.5	8.6	10.9	1.9	.7	1.2	12.3
November ---- do	18.8	8.4	10.4	1.9	.7	1.2	11.7
Hours ---- millions	38.0	17.0	21.0	3.5	1.2	2.3	24.0
January to March ---- do	9.3	4.3	5.0	.9	.3	.6	6.6
April to June ---- do	9.7	4.3	5.5	.9	.3	.6	6.2
July to September ---- do	9.4	4.2	5.3	.8	.3	.5	5.5
October to December ---- do	9.5	4.2	5.2	.9	.3	.6	5.7
Wages ---- mil. dol.	344.1	184.2	159.9	44.2	13.9	30.3	263.7
Value added by manufacture[4] ---- do	859.3	387.3	472.0	30.7	52.9	-22.2	993.3
Cost of materials, etc.[5] ---- do	1 778.5	821.7	956.9	535.3	146.2	389.0	2 293.9
Materials, parts, containers, etc., consumed ---- do	1 606.1	735.9	870.2	512.9	139.8	373.1	2 160.4
Resales ---- do	13.0	2.8	10.2	(D)	(D)	(D)	9.3
Fuels consumed[6] ---- do	64.5	41.9	22.6	12.1	4.0	8.1	34.0
Purchased electric energy[7] ---- do	60.9	32.4	28.5	6.2	2.2	4.1	48.7
Contract work ---- do	34.0	8.6	25.4	(D)	(D)	(D)	41.5
Value of shipments, including resales ---- do	2 673.1	1 240.2	1 432.9	670.8	208.1	462.7	3 418.3
Value of resales ---- do	18.1	3.3	14.8	(D)	(D)	(D)	12.8

See footnotes at end of table.

Table 3a. **Summary Statistics for the Industry: 1982**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Aluminum extruded products (SIC 3354)			Aluminum rolling and drawing, n.e.c. (SIC 3355)			Nonferrous rolling and drawing, n.e.c. (SIC 3356)
	Total	Establishments with melting facilities (SIC 3354-11)	Establishments without melting facilities (SIC 3354-12)	Total	Establishments with melting facilities (SIC 3355-11)	Establishments without melting facilities (SIC 3355-12)	
Manufacturers' inventories (see tables 3b and 3c)							
Capital expenditures for plant and equipment[8] ---- do	117.5	68.3	49.1	5.5	1.9	3.5	137.8
New capital expenditures ---- do	114.7	68.0	46.6	5.5	2.0	3.5	134.4
New buildings and other structures ---- do	19.1	6.1	13.0	.2	.1	.2	27.6
New machinery and equipment ---- do	95.6	62.0	33.7	5.3	1.9	3.4	106.8
Used capital expenditures ---- do	2.9	.4	2.5	(Z)	(Z)	(Z)	3.5
Primary product specialization ratio[9] ---- percent	89	(NA)	(NA)	77	(NA)	(NA)	94
Coverage ratio[10] ---- do	91	(NA)	(NA)	7	(NA)	(NA)	92

Item	Nonferrous wiredrawing and insulating (SIC 3357)						Primary metal products, n.e.c. (SIC 3399)
	Total	Establishments with rod mill (SIC 3357-11)	Establishments without rod or mill insulating (SIC 3357-12)	Establishments without rod mill insulation (SIC 3357-13)	Establishments without wire drawing (SIC 3557-14)	Metal heat treating (SIC 3398)	
Companies[1] ---- number	271	(NA)	(NA)	(NA)	(NA)	668	239
All establishments[2] ---- do	441	38	28	95	280	758	249
With 1 to 19 employees ---- do	100	–	4	2	94	469	169
With 20 to 99 employees ---- do	136	5	11	19	101	270	63
With 100 employees or more ---- do	205	33	13	74	85	19	17
All employees:							
Average for year ---- 1,000	67.7	8.8	4.9	25.6	28.5	17.7	8.2
Annual payroll[3] ---- mil. dol.	1 271.6	155.7	85.4	530.9	499.7	324.2	173.4
Production workers:							
Average for year ---- 1,000	50.0	6.5	4.0	18.8	20.7	13.5	5.6
March ---- do	52.2	6.7	4.2	19.9	21.3	14.2	5.9
May ---- do	51.2	6.7	4.1	19.3	21.2	13.9	5.8
August ---- do	48.8	6.4	4.0	18.3	20.1	13.2	5.4
November ---- do	47.7	6.2	3.9	17.6	20.0	12.7	5.2
Hours ---- millions	95.7	12.1	7.8	36.6	39.2	26.9	10.6
January to March ---- do	25.2	3.2	2.2	9.7	10.1	7.0	2.8
April to June ---- do	24.9	3.2	2.1	9.5	10.2	7.0	2.7
July to September ---- do	22.7	2.8	1.8	8.7	9.4	6.5	2.5
October to December ---- do	22.9	2.9	1.8	8.7	9.4	6.4	2.5
Wages ---- mil. dol.	837.5	107.3	64.6	352.4	313.2	216.6	101.4
Value added by manufacture[4] ---- do	2 831.1	294.5	147.6	1 193.1	1 195.8	684.5	313.5
Cost of materials, etc.[5] ---- do	5 266.4	843.6	382.2	2 143.3	1 897.2	416.0	595.2
Materials, parts, containers, etc., consumed ---- do	4 982.1	806.5	362.1	2 036.6	1 776.9	275.5	507.5
Resales ---- do	74.3	1.1	(Z)	26.5	46.6	29.2	9.9
Fuels consumed[6] ---- do	54.4	13.5	2.9	20.3	17.8	50.7	24.0
Purchased electric energy[7] ---- do	127.5	21.7	8.9	55.7	41.2	42.6	30.0
Contract work ---- do	28.0	.8	8.3	4.2	14.7	17.8	23.8
Value of shipments, including resales ---- do	8 224.5	1 152.3	536.3	3 408.8	3 127.2	1 128.2	938.1
Value of resales ---- do	86.1	1.6	(Z)	29.1	55.4	33.8	12.9
Manufacturers' inventories (see tables 3b and 3c)							
Capital expenditures for plant and equipment[8] ---- do	324.8	36.5	17.0	137.6	133.5	48.4	59.7
New capital expenditures ---- do	294.7	32.6	14.8	125.0	122.2	42.5	51.7
New buildings and other structures ---- do	45.1	4.5	3.9	13.4	23.4	6.2	5.5
New machinery and equipment ---- do	249.6	28.2	10.9	111.7	98.8	36.3	46.2
Used capital expenditures ---- do	30.1	3.9	2.2	12.7	11.4	5.9	8.1
Primary product specialization ratio[9] ---- percent	97	(NA)	(NA)	(NA)	(NA)	(11)	87
Coverage ratio[10] ---- do	88	(NA)	(NA)	(NA)	(NA)	(11)	82

[1]For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.
[2]Includes establishments with payroll at any time during year.
[3]Data on supplemental labor costs are not included in annual payroll, but are shown in table 3d.
[4]Value added by manufacture is computed using inventory data reported on a cost or market basis prior to any adjustment to LIFO cost. See table 3b, footnote 1 for further explanation.
[5]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3d.
[6]Data on purchased fuels by type were not collected for 1982. See MC82-S-4, Fuels and Electric Energy Consumed, for 1981 data on purchased fuels by type.
[7]Data on quantity of electric energy used for heat and power are included in table 3d.
[8]Data on capital expenditures for new machinery and equipment by type, depreciable assets, retirements, rental payments, and depreciation are included in table 3d.
[9]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in industry.
[10]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.
[11]Relationships are not meaningful because of predominance of miscellaneous receipts, particularly receipts for contract and commission work on materials owned by others.

Table 3b. Value of Inventories for the Industry: End of 1981 and 1982

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Copper rolling and drawing (SIC 3351)		Aluminum sheet, plate, and foil (SIC 3353)		Aluminum extruded products (SIC 3354)		Aluminum rolling and drawing, n.e.c. (SIC 3355)	
	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982
Total inventories[1]	**592.7**	**557.1**	**2 525.2**	**2 303.4**	**606.2**	**489.7**	**233.7**	**117.3**
Detail by method of valuation:								
Subject to LIFO costing[2]	293.3	265.2	610.6	583.4	250.6	209.3	11.7	11.7
LIFO reserve	123.8	104.2	331.8	262.9	108.2	76.2	6.4	6.8
LIFO value	169.5	161.1	278.8	320.5	142.4	133.0	5.4	4.8
Not subject to LIFO costing	272.3	268.8	1 910.1	1 716.0	329.7	258.0	217.2	101.6
Valuation method not reported[3]	26.3	22.7	4.6	4.0	23.6	20.7	4.8	4.0
Amount subject to LIFO reported without associated reserve and value[4]	.8	.5	–	–	2.3	1.7	–	–
Detail by stage of fabrication:								
Finished goods	111.9	102.1	557.2	465.4	92.0	85.0	35.6	25.1
Work in process	295.6	260.1	1 515.6	1 446.1	188.6	160.3	163.6	69.4
Materials and supplies	185.2	194.9	452.4	391.8	325.6	244.4	34.4	22.8

Item	Nonferrous rolling and drawing, n.e.c. (SIC 3356)		Nonferrous wiredrawing and insulating (SIC 3357)		Metal heat treating (SIC 3398)		Primary metal products, n.e.c. (SIC 3399)	
	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982
Total inventories[1]	**1 197.2**	**1 070.2**	**1 492.4**	**1 297.4**	**139.7**	**98.1**	**451.2**	369.6
Detail by method of valuation:								
Subject to LIFO costing[2]	614.0	562.0	482.9	389.7	53.4	24.1	296.2	228.2
LIFO reserve	352.8	298.7	124.2	100.9	17.7	8.6	158.4	107.6
LIFO value	261.2	263.3	358.8	288.9	35.7	15.5	137.8	120.6
Not subject to LIFO costing	484.8	423.2	869.9	787.5	29.9	26.3	115.7	105.5
Valuation method not reported[3]	49.9	40.8	137.4	118.4	56.3	47.2	38.7	35.5
Amount subject to LIFO reported without associated reserve and value[4]	48.5	44.2	2.2	1.8	.1	.5	.6	.4
Detail by stage of fabrication:								
Finished goods	160.8	136.3	536.9	494.0	60.3	34.4	80.0	73.6
Work in process	668.6	562.0	509.2	424.9	14.0	12.2	158.9	135.8
Materials and supplies	367.8	371.8	446.4	378.5	65.3	51.5	212.3	160.2

[1]Effective with the 1982 Economic Censuses, uniform instructions for reporting inventories were introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (LIFO, FIFO, market, to name a few). In 1982, all respondents were requested to report inventories at cost or market. LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve. For further explanation, see inventories in appendixes.

[2]Only includes data reported by respondents who (a) indicated amount of inventories subject to LIFO cost, and (b) provided sufficient information to determine associated LIFO reserve and value figures.

[3]Includes data estimated for nonresponse and nonmail administrative records and data reported by respondents who provided total inventory figures without other information.

[4]Includes data reported by respondents who indicated their inventories were subject to LIFO cost, but did not provide associated LIFO reserve and value figures.

Table 3c. Inventories by Specific Method of Valuation for the Industry: End of 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Copper rolling and drawing (SIC 3351)		Aluminum sheet, plate, and foil (SIC 3353)		Aluminum extruded products (SIC 3354)		Aluminum rolling and drawing, n.e.c. (SIC 3355)	
	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)
Total inventories	**100.0**	**(X)**	**100.0**	**(X)**	**100.0**	**(X)**	100.0	(X)
Last-In, First-Out (LIFO) methods	47.6	(X)	25.3	(X)	42.7	(X)	9.9	(X)
Non-LIFO methods	48.2	(X)	74.5	(X)	52.7	(X)	86.6	(X)
Cost basis:								
First-In, First-Out (FIFO)	21.8	.6	4.1	.7	15.6	.9	.6	.4
Average cost	13.3	.3	15.3	.1	9.5	.3	5.1	(Z)
Specific or actual cost	4.6	.1	1.9	(Z)	2.4	.3	7.0	(Z)
Standard cost	6.4	.7	43.9	.5	19.5	.5	23.9	.1
Other	1.8	(Z)	9.3	.1	5.6	.3	50.0	.3
Market basis:								
Market lower than cost	(Z)	(Z)	(Z)	(Z)	.1	(Z)	(Z)	(Z)
Market always used	.3	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Valuation method not reported	4.1	(X)	.2	(X)	4.2	(X)	3.4	(X)
Amount subject to LIFO reported without associated reserve and value	.1	(X)	(Z)	(X)	.3	(X)	(Z)	(X)

See footnotes at end of table.

Table 3c. Inventories by Specific Method of Valuation for the Industry: End of 1982—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Nonferrous rolling and drawing, n.e.c. (SIC 3356)		Nonferrous wire drawing and insulating (SIC 3357)		Metal heat treating (SIC 3398)		Primary metal products, n.e.c. (SIC 3399)	
	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)
Total inventories	**100.0**	**(X)**	**100.0**	**(X)**	100.0	**(X)**	**100.0**	**(X)**
Last-In, First-Out (LIFO) methods	52.5	(X)	30.0	(X)	24.6	(X)	61.7	(X)
Non-LIFO methods	39.5	(X)	60.7	(X)	26.8	(X)	28.5	(X)
Cost basis:								
First-In, First-Out (FIFO)	5.0	.6	22.8	1.2	5.3	2.0	(S)	(S)
Average cost	12.7	1.5	2.6	.1	(S)	(S)	5.7	1.8
Specific or actual cost	1.9	.6	.7	.1	(S)	(S)	10.8	3.2
Standard cost	19.6	1.3	32.4	1.4	10.3	4.4	4.3	1.3
Other	(Z)	(Z)	1.3	.1	(S)	(S)	.5	.1
Market basis:								
Market lower than cost	.3	(Z)	.6	.1	7.7	2.1	4.6	1.0
Market always used	(Z)	(Z)	.4	(Z)	(Z)	(Z)	(Z)	(Z)
Valuation method not reported	3.8	(X)	9.1	(X)	48.1	(X)	9.6	(X)
Amount subject to LIFO reported without associated reserve and value	4.1	(X)	.1	(X)	.5	(X)	.1	(X)

Note: The percentages shown for the LIFO and non-LIFO totals and the categories "valuation method not reported" and "amount subject to LIFO reported..." are based on the census universe estimates included in table 3b. The percentages shown for the specific non-LIFO methods of valuation (e.g., FIFO, etc.) are based on a representative sample of establishments included in the annual survey of manufactures (ASM) panel for 1982 (see appendixes for description of ASM). The absolute standard error of each of the ASM estimates is shown above.

Table 3d. Supplemental Industry Statistics Based on Sample Estimates: 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Copper rolling and drawing (SIC 3351)		Aluminum sheet, plate, and foil (SIC 3353)		Aluminum extruded products (SIC 3354)		Aluminum rolling and drawing, n.e.c. (SIC 3355)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Supplemental labor costs:								
Total	142.4	1	267.7	1	137.3	2	23.2	1
Legal costs	47.4	1	75.4	1	47.6	2	5.5	1
Voluntary costs	95.0	1	192.3	1	89.7	2	17.8	1
Purchased services:								
Cost of purchased services for the repair of—								
Buildings and other structures	2.7	2	6.9	2	2.2	9	.2	1
Response coverage ratio (percent)[2]	78.3	(X)	92.8	(X)	59.3	(X)	28.2	(X)
Machinery	32.8	4	73.9	3	24.6	2	1.2	9
Response coverage ratio (percent)[2]	80.3	(X)	97.2	(X)	72.2	(X)	33.8	(X)
Cost of purchased communication services	6.4	2	5.9	4	5.9	3	.6	4
Response coverage ratio (percent)[2]	88.8	(X)	94.8	(X)	80.1	(X)	84.6	(X)
Electric energy used for heat and power:								
Purchased:								
Quantity (million kWh)	1 553.0	1	3 683.7	1	1 335.2	1	201.7	1
Cost	79.9	(X)	128.8	(X)	60.9	(X)	6.2	(X)
Generated less sold (million kWh)	2.6	1	–	–	(S)	(S)	–	1
Gross book value of depreciable assets:								
Total:								
Beginning of year	1 316.8	2	3 472.1	1	882.9	2	212.0	1
New capital expenditures	114.6	1	256.9	1	111.4	8	4.9	2
Used capital expenditures	6.5	5	6.0	1	4.0	47	(Z)	1
Retirements	42.4	6	40.8	1	21.5	9	2.3	2
End of year	1 395.5	2	3 694.2	1	976.8	2	214.6	1
Buildings and other structures:								
Beginning of year	286.2	2	693.5	2	192.8	2	61.6	1
New capital expenditures	15.3	1	23.9	1	21.4	19	.2	1
Used capital expenditures	.6	21	.1	1	.6	5	(Z)	1
Retirements	8.3	9	4.3	1	1.7	17	.3	1
End of year	293.8	2	713.1	2	213.2	3	61.5	1
Machinery and equipment:								
Beginning of year	1 030.7	2	2 778.6	1	690.0	2	150.4	1
New capital expenditures	99.2	1	233.0	1	89.9	6	4.7	2
Automobiles, trucks, etc., for highway use	.8	4	1.3	1	2.3	3	.3	13
Computers and peripheral data processing equipment	1.6	4	2.9	1	.8	11	.1	1
All other	96.3	1	228.8	1	83.6	6	4.2	1
New machinery and equipment, n.s.k.[3]	.5	(S)	(Z)	(S)	3.2	(S)	.1	(S)
Used capital expenditures	5.9	3	5.9	1	3.4	56	(Z)	1
Retirements	34.1	5	36.5	1	19.7	9	2.0	2
End of year	1 101.7	2	2 981.1	1	763.6	2	153.1	1
Rental payments:								
Total	8.7	2	13.4	3	13.0	5	1.6	1
Buildings and other structures	1.4	3	2.7	2	4.3	9	.1	1
Machinery and equipment	7.3	3	10.7	3	8.7	5	1.4	1
Depreciation charges during 1982:								
Total	62.4	2	160.8	2	51.8	2	9.5	1
Buildings and other structures	8.1	2	21.8	3	6.8	4	1.7	1
Machinery and equipment	54.3	2	139.1	2	45.0	2	7.7	1

See footnotes at end of table.

Table 3d. **Supplemental Industry Statistics Based on Sample Estimates: 1982**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Nonferrous rolling and drawing, n.e.c. (SIC 3356)		Nonferrous wire drawing and insulating (SIC 3357)		Metal heat treating (SIC 3398)		Primary metal products, n.e.c. (SIC 3399)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Supplemental labor costs:								
Total	129.5	1	341.3	1	63.1	4	43.9	5
Legal costs	39.7	1	125.1	2	32.8	3	15.3	5
Voluntary costs	89.8	1	216.2	2	30.3	5	28.6	8
Purchased services:								
Cost of purchased services for the repair of—								
Buildings and other structures	6.2	11	7.6	7	2.9	34	1.5	8
Response coverage ratio (percent)[2]	67.1	(X)	75.3	(X)	64.3	(X)	68.3	(X)
Machinery	19.5	5	43.0	7	12.5	27	7.7	12
Response coverage ratio (percent)[2]	63.3	(X)	78.8	(X)	71.8	(X)	83.1	(X)
Cost of purchased communication services	21.8	45	15.9	4	3.3	36	5.5	7
Response coverage ratio (percent)[2]	75.3	(X)	76.6	(X)	58.1	(X)	78.4	(X)
Electric energy used for heat and power:								
Purchased:								
Quantity (million kWh)	1 395.1	1	2 457.6	1	694.9	4	542.2	1
Cost	48.7	(X)	127.5	(X)	42.6	(X)	30.0	(X)
Generated less sold (million kWh)	(Z)	1	(S)	(S)	(S)	(S)	(S)	(S)
Gross book value of depreciable assets:								
Total:								
Beginning of year	1 081.4	2	2 713.5	2	562.3	16	363.0	7
New capital expenditures	127.0	6	268.1	4	30.7	22	48.2	12
Used capital expenditures	2.4	15	29.9	12	8.5	82	5.4	28
Retirements	21.7	10	121.7	6	31.6	37	5.3	14
End of year	1 189.0	2	2 889.8	2	569.9	16	411.3	6
Buildings and other structures:								
Beginning of year	231.3	3	671.1	2	139.7	17	93.1	9
New capital expenditures	24.0	3	37.0	8	2.5	20	3.4	17
Used capital expenditures	.2	40	12.1	22	7.0	97	3.0	51
Retirements	4.0	9	15.8	13	16.7	55	1.8	7
End of year	251.5	3	704.4	2	132.4	17	97.6	8
Machinery and equipment:								
Beginning of year	850.0	2	2 042.4	2	422.6	16	269.9	6
New capital expenditures	103.1	6	231.1	4	28.2	22	44.8	12
Automobiles, trucks, etc., for highway use	.5	1	1.1	22	1.6	44	1.1	21
Computers and peripheral data processing equipment	1.5	8	3.1	9	.3	33	.1	31
All other	89.0	1	176.5	5	18.6	26	42.4	13
New machinery and equipment, n.s.k.[3]	12.1	(S)	50.5	(S)	7.7	(S)	1.2	(S)
Used capital expenditures	2.2	14	17.8	14	1.5	42	2.5	2
Retirements	17.7	10	105.9	6	14.9	28	3.5	20
End of year	937.5	2	2 185.4	2	437.5	16	313.7	6
Rental payments:								
Total	9.7	5	36.7	5	9.2	29	3.5	19
Buildings and other structures	1.8	23	12.5	6	4.8	34	.5	33
Machinery and equipment	7.9	3	24.2	7	4.3	42	3.0	21
Depreciation charges during 1982:								
Total	67.0	2	165.6	3	42.3	16	24.6	7
Buildings and other structures	9.3	4	24.3	2	6.4	20	3.6	10
Machinery and equipment	57.6	2	141.3	3	35.9	16	21.0	6

Note: Data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used expenditures are also shown in table 3a. Data in table 3a are census universe totals and may differ from annual survey of manufactures (ASM) sample estimates shown in this table. Data in this table represent best estimates of year-to-year change as measured by the continuing ASM sample. However, they are subject to sampling error and, hence, as estimates of level, are not as reliable as universe figures shown in table 3a.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]Measure of extent to which respondents reported each item. Derived for each item by calculating the ratio of weighted employment for those sample establishments that reported the specific inquiry to weighted total employment for all sample establishments classified in industry. (See appendixes for explanation of sample weight.)
[3]Represents total machinery and equipment expenditures for establishments that did not break down their expenditures by specific type.

Table 4. **Industry Statistics by Employment Size of Establishment: 1982**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3351, COPPER ROLLING AND DRAWING												
Total	-	137	23.3	468.2	17.2	32.6	322.9	957.7	2 267.0	3 270.0	123.9	557.1
Establishments with an average of—												
1 to 4 employees	E7	23	(Z)	.7	(Z)	.1	.4	1.2	2.7	4.0	(D)	.5
5 to 9 employees	E7	11	.1	1.1	.1	.1	.8	1.8	6.7	8.6	.1	2.1
10 to 19 employees	E6	8	.1	3.1	.1	.2	2.2	6.5	12.2	18.9	.3	2.3
20 to 49 employees	E2	22	.7	12.0	.6	1.1	7.9	33.6	90.4	123.5	12.4	14.6
50 to 99 employees	-	20	1.5	27.9	1.1	2.1	18.5	46.7	232.6	281.7	2.8	29.7
100 to 249 employees	-	27	4.5	85.0	3.3	6.3	57.3	192.7	486.8	695.4	32.0	83.4
250 to 499 employees	-	13	4.5	93.2	3.5	6.8	65.1	208.2	496.3	691.6	16.7	104.1
500 to 999 employees	-	10	7.6	156.9	5.6	10.4	111.4	278.6	677.4	971.6	41.9	214.8
1,000 to 2,499 employees	-	3	4.2	88.3	3.1	5.5	59.1	188.5	261.9	474.8	15.3	105.6
Covered by administrative records[2]	E9	18	.1	1.4	.1	.1	1.1	2.2	6.7	9.1	.2	1.3

See footnotes at end of table.

Table 4. Industry Statistics by Employment Size of Establishment: 1982—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees: Number (1,000)	All employees: Payroll (million dollars)	Production workers: Number (1,000)	Production workers: Hours (millions)	Production workers: Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
INDUSTRY 3351, COPPER ROLLING AND DRAWING—Con.												
Industry 3351-21, Establishments With Casting Departments												
Total	-	42	15.4	319.9	11.2	21.3	218.6	596.4	1 260.3	1 891.0	83.7	379.1
Establishments with an average of—												
5 to 9 employees	-	1	.7	12.7	.5	.9	8.3	22.8	88.9	110.6	30.7	15.3
20 to 49 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	-	7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	-	11	5.6	115.3	4.2	7.9	78.6	231.2	527.1	757.9	(D)	40.7
250 to 499 employees	-	11	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	102.3
500 to 999 employees	-	8	9.1	191.8	6.6	12.5	131.7	342.4	644.4	1 022.5	53.0	220.8
1,000 to 2,499 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Industry 3351-22, Establishments Without Casting Departments												
Total	-	95	7.9	148.3	6.0	11.3	104.2	361.3	1 006.7	1 379.0	40.2	178.0
Establishments with an average of—												
1 to 4 employees	E7	23	(Z)	.7	(Z)	.1	.4	1.2	2.7	4.0	14.5	.5
5 to 9 employees	E7	10	1.9	31.4	1.4	2.7	21.2	65.7	253.1	322.1	(D)	33.4
10 to 19 employees	E6	8	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	E2	20	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	-	13	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	-	16	3.4	62.8	2.6	5.2	43.8	169.6	456.0	629.0	19.2	44.5
250 to 499 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	-	2	2.6	53.4	2.0	3.5	38.8	124.7	294.9	423.9	4.1	99.6
1,000 to 2,499 employees	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	18	.1	1.4	.1	.1	1.1	2.2	6.7	9.1	.2	1.3
INDUSTRY 3353, ALUMINUM SHEET, PLATE, AND FOIL												
Total	-	57	27.8	863.7	21.0	40.0	641.1	1 156.2	5 911.3	7 228.7	260.4	2 303.4
Establishments with an average of—												
1 to 4 employees	E4	7	(Z)	.3	(Z)	(Z)	.2	1.8	2.2	4.5	.1	1.2
5 to 9 employees	E7	4	.1	1.0	(Z)	.1	.7	1.6	3.9	5.7	.2	1.4
10 to 19 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	E3	5	.1	2.4	.1	.2	2.0	4.6	7.4	13.5	.3	3.8
50 to 99 employees	-	8	.5	12.5	.4	.7	7.5	27.4	80.9	107.2	1.7	24.5
100 to 249 employees	-	8	1.4	36.5	1.0	2.1	24.4	75.6	375.2	449.1	4.6	79.5
250 to 499 employees	-	10	4.6	128.2	3.3	6.5	91.1	148.2	927.1	1 103.8	23.2	324.0
500 to 999 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	-	8	21.0	682.9	16.2	30.4	515.2	896.9	4 514.7	5 545.0	230.3	1 869.0
2,500 employees or more	-	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	6	(Z)	.6	(Z)	(Z)	.4	.7	2.7	3.6	.1	1.0
Industry 3353-11, Establishments With Melting Facilities												
Total	-	26	24.0	764.3	18.3	34.9	571.5	1 009.2	5 293.4	6 442.2	230.2	2 082.9
Establishments with an average of—												
20 to 49 employees	-	1	1.0	26.2	.7	1.3	17.7	60.6	278.7	333.5	3.6	48.5
50 to 99 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	-	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
250 to 499 employees	-	7	3.8	106.9	2.8	5.4	77.4	109.1	702.2	842.4	20.0	269.6
500 to 999 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	-	7	19.3	631.2	14.8	28.1	476.4	839.4	4 312.5	5 266.4	206.6	1 764.8
2,500 employees or more	-	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Industry 3353-12, Establishments Without Melting Facilities												
Total	-	31	3.8	99.4	2.7	5.1	69.6	147.1	617.9	786.5	30.2	220.5
Establishments with an average of—												
1 to 4 employees	E4	7	(Z)	.3	(Z)	(Z)	.2	1.8	2.2	4.5	.1	1.2
5 to 9 employees	E7	4	.1	1.0	(Z)	.1	.7	1.6	3.9	5.7	.2	1.4
10 to 19 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	E4	4	1.1	25.2	.8	1.6	16.2	47.1	184.7	236.3	3.0	59.2
50 to 99 employees	-	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	-	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
250 to 499 employees	-	3	2.6	72.9	1.9	3.4	52.5	96.5	427.0	540.0	26.9	158.7
1,000 to 2,499 employees	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	6	(Z)	.6	(Z)	(Z)	.4	.7	2.7	3.6	.1	1.0

See footnotes at end of table.

Table 4. Industry Statistics by Employment Size of Establishment: 1982—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3354, ALUMINUM EXTRUDED PRODUCTS												
Total	-	193	25.4	499.0	19.3	38.0	344.1	859.3	1 778.5	2 673.1	114.7	489.7
Establishments with an average of—												
1 to 4 employees	E9	16	(Z)	.5	(Z)	(Z)	.4	1.0	2.1	3.2	.1	.6
5 to 9 employees	E2	12	.1	1.5	.1	.1	1.0	4.0	11.2	15.5	.1	1.9
10 to 19 employees	-	14	.2	3.5	.2	.3	2.2	9.2	19.7	28.4	.4	8.8
20 to 49 employees	-	32	1.1	19.0	.8	1.6	12.3	44.7	101.6	147.8	5.4	19.9
50 to 99 employees	-	42	2.9	49.6	2.3	4.5	32.4	88.7	211.6	302.3	6.5	31.8
100 to 249 employees	-	53	8.7	154.6	6.6	12.9	105.4	349.4	683.5	1 028.8	36.8	139.5
250 to 499 employees	-	14	4.8	93.1	3.6	7.1	64.9	194.4	327.8	528.7	13.9	101.4
500 to 999 employees	-	7	4.1	88.0	3.1	6.0	63.2	110.6	202.0	332.4	7.6	73.7
1,000 to 2,499 employees	-	3	3.6	89.2	2.6	5.3	62.2	57.4	219.1	286.0	43.9	112.0
Covered by administrative records[2]	E9	16	.1	1.5	.1	.2	1.1	2.8	6.1	9.1	.2	1.8
Industry 3354-11, Establishments With Melting Facilities												
Total	-	41	11.5	262.5	8.6	17.0	184.2	387.3	821.7	1 240.2	68.0	280.3
Establishments with an average of—												
10 to 19 employees	-	1	.2	3.4	.1	.3	2.3	4.8	19.2	24.2	.4	3.2
20 to 49 employees	-	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	-	9	.6	11.4	.5	.9	7.4	29.7	57.2	87.8	.8	8.3
100 to 249 employees	-	13	2.2	43.1	1.6	3.3	30.0	110.8	215.0	325.3	66.8	38.5
250 to 499 employees	-	7	2.6	54.7	2.0	3.9	38.6	117.6	173.1	291.3	(D)	52.2
500 to 999 employees	-	4	2.4	60.8	1.8	3.2	43.8	67.0	138.2	225.7	5.5	66.1
1,000 to 2,499 employees	-	3	3.6	89.2	2.6	5.3	62.2	57.4	219.1	286.0	43.9	112.0
Industry 3354-12, Establishments Without Melting Facilities												
Total	-	152	13.9	236.5	10.7	21.0	159.9	472.0	956.9	1 432.9	46.6	209.4
Establishments with an average of—												
1 to 4 employees	E9	16	(Z)	.5	(Z)	(Z)	.4	1.0	2.1	3.2	.1	.6
5 to 9 employees	E2	12	.1	1.5	.1	.1	1.0	4.0	11.2	15.5	.1	1.9
10 to 19 employees	E1	13	1.2	19.2	.8	1.7	12.2	49.0	102.2	152.0	5.4	25.4
20 to 49 employees	-	28	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	-	33	2.3	38.2	1.8	3.6	25.1	59.0	154.3	214.6	5.7	23.6
100 to 249 employees	-	40	6.4	111.5	5.0	9.7	75.4	238.6	468.5	703.5	35.3	101.0
250 to 499 employees	E1	7	2.2	38.4	1.6	3.1	26.3	76.8	154.7	237.5	(D)	49.2
500 to 999 employees	-	3	1.7	27.3	1.3	2.7	19.4	43.6	63.8	106.7	(D)	7.6
Covered by administrative records[2]	E9	16	.1	1.5	.1	.2	1.1	2.8	6.1	9.1	.2	1.8
INDUSTRY 3355, ALUMINUM ROLLING AND DRAWING, N.E.C.												
Total	-	27	2.6	65.0	1.9	3.5	44.2	30.7	535.3	670.8	5.5	117.3
Establishments with an average of—												
1 to 4 employees	E9	9	(Z)	.5	(Z)	.1	.4	1.4	2.5	4.0	.1	.8
5 to 9 employees	-	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	-	3	.1	2.0	.1	.2	1.3	3.5	7.5	11.7	.6	.6
50 to 99 employees	E4	4	.3	4.4	.2	.4	3.1	7.1	106.3	115.4	1.0	11.1
100 to 249 employees	-	5	2.2	58.1	1.6	2.8	39.4	18.8	418.9	539.7	3.8	104.8
250 to 499 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	10	(Z)	.4	(Z)	(Z)	.3	1.2	2.4	3.6	.1	.7
Industry 3355-11, Establishments With Melting Facilities												
Total	-	5	.9	21.0	.7	1.2	13.9	52.9	146.2	208.1	2.0	36.3
Establishments with an average of—												
50 to 99 employees	-	1	.9	21.0	.7	1.2	13.9	52.9	146.2	208.1	2.0	36.3
100 to 249 employees	-	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
250 to 499 employees	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Industry 3355-12, Establishments Without Melting Facilities												
Total	E1	22	1.7	44.1	1.3	2.3	30.3	-22.1	389.0	462.7	3.5	81.0
Establishments with an average of—												
1 to 4 employees	E9	9	(Z)	.5	(Z)	.1	.4	1.4	2.5	4.0	.1	.8
5 to 9 employees	-	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	-	3	.1	2.0	.1	.2	1.3	3.5	7.5	11.7	.6	.6
50 to 99 employees	E4	3	1.5	41.6	1.2	2.1	28.7	-26.9	379.0	447.1	2.9	79.7
100 to 249 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
250 to 499 employees	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	10	(Z)	.4	(Z)	(Z)	.3	1.2	2.4	3.6	.1	.7
INDUSTRY 3356, NONFERROUS ROLLING AND DRAWING, N.E.C.												
Total	-	169	20.0	472.2	12.6	24.0	263.7	993.3	2 293.9	3 418.3	134.4	1 070.2
Establishments with an average of—												
1 to 4 employees	E5	30	.1	1.2	(Z)	.1	.7	3.4	8.4	12.2	.1	2.9
5 to 9 employees	E3	24	.2	2.7	.1	.2	1.6	6.4	22.3	29.6	.3	5.9
10 to 19 employees	E6	24	.3	6.0	.2	.4	2.8	16.8	17.2	31.1	3.7	12.7
20 to 49 employees	-	34	1.1	21.7	.8	1.5	13.1	38.4	204.3	247.5	5.0	54.6
50 to 99 employees	-	20	1.5	31.7	1.1	2.0	19.2	50.7	226.1	291.6	4.0	61.4
100 to 249 employees	-	14	2.2	41.0	1.4	2.7	22.3	75.6	304.2	397.3	6.3	128.8
250 to 499 employees	-	12	4.4	104.6	2.9	5.6	59.4	193.7	304.8	510.3	31.0	363.4
500 to 999 employees	-	8	5.7	138.9	3.9	7.3	86.1	366.9	992.5	1 379.1	64.4	177.4
1,000 to 2,499 employees	-	3	4.6	124.6	2.2	4.2	58.5	241.5	214.2	519.6	19.5	263.1
Covered by administrative records[2]	E9	34	.2	3.1	.2	.3	1.9	8.9	13.6	23.6	.5	7.8

See footnotes at end of table.

Table 4. Industry Statistics by Employment Size of Establishment: 1982—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees: Number (1,000)	All employees: Payroll (million dollars)	Production workers: Number (1,000)	Production workers: Hours (millions)	Production workers: Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
INDUSTRY 3357, NONFERROUS WIREDRAWING AND INSULATING												
Total	-	**441**	**67.7**	**1 271.6**	**50.0**	**95.7**	**837.5**	**2 831.1**	**5 266.4**	**8 224.5**	**294.7**	**1 297.4**
Establishments with an average of—												
1 to 4 employees	E8	28	.1	.9	(Z)	.1	.7	2.2	4.7	7.0	.2	1.1
5 to 9 employees	E8	28	.2	3.5	.2	.3	2.5	7.4	14.6	22.6	.4	3.7
10 to 19 employees	E4	44	.7	11.0	.5	1.0	6.7	23.6	45.3	71.6	1.8	11.2
20 to 49 employees	E1	67	2.3	40.5	1.7	3.3	23.7	93.6	171.8	262.5	14.8	35.8
50 to 99 employees	-	69	4.9	77.7	3.6	7.0	49.0	154.4	346.6	521.0	19.2	71.7
100 to 249 employees	-	132	21.2	378.0	16.1	31.2	255.2	883.9	1 923.1	2 845.6	84.5	432.6
250 to 499 employees	-	51	17.6	314.9	13.1	25.7	209.2	624.5	1 139.4	1 779.4	68.9	335.1
500 to 999 employees	-	15	9.5	178.1	6.4	12.2	104.0	401.5	820.1	1 265.2	37.1	226.6
1,000 to 2,499 employees	-	6	11.4	267.0	8.5	14.9	186.6	640.1	800.7	1 449.7	67.7	179.6
2,500 employees or more	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	42	.4	4.6	.3	.6	3.2	9.4	20.8	30.8	.6	5.0
Industry 3357-11, With Rod Mill												
Total	-	**38**	**8.8**	**155.7**	**6.5**	**12.1**	**107.3**	**294.5**	**843.6**	**1 152.3**	**32.6**	**186.5**
Establishments with an average of—												
20 to 49 employees	-	2	.3	5.7	.2	.4	3.7	12.5	27.9	40.6	.9	4.6
50 to 99 employees	-	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	-	23	3.6	62.7	2.9	5.5	45.1	146.0	474.6	624.5	14.9	72.2
250 to 499 employees	-	7	4.9	87.3	3.5	6.3	58.5	136.0	341.1	487.3	16.9	109.7
500 to 999 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Industry 3357-12, Without Rod Mill or Insulating												
Total	-	**28**	**4.9**	**85.4**	**4.0**	**7.8**	**64.6**	**147.6**	**382.2**	**536.3**	**14.8**	**99.8**
Establishments with an average of—												
5 to 9 employees	E4	1	.8	12.1	.6	1.1	8.8	12.5	61.7	76.2	1.5	14.2
10 to 19 employees	-	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	-	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	-	7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	-	8	1.4	28.1	1.1	2.1	20.4	44.0	169.4	211.0	8.8	44.5
250 to 499 employees	-	3	2.8	45.2	2.3	4.6	35.4	91.2	151.2	249.0	4.5	41.2
500 to 999 employees	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Industry 3357-13, Without Rod Mill but With Insulation												
Total	-	**95**	**25.6**	**530.9**	**18.8**	**36.6**	**352.4**	**1 193.1**	**2 143.3**	**3 408.8**	**125.0**	**509.5**
Establishments with an average of—												
10 to 19 employees	-	2	.4	9.0	.3	.7	5.6	23.1	49.2	70.9	1.1	9.8
20 to 49 employees	-	9	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	-	10	.7	10.9	.5	1.0	7.2	25.6	77.4	107.2	5.9	12.0
100 to 249 employees	-	44	7.1	128.7	5.4	10.5	88.6	335.7	728.7	1 088.1	25.5	156.3
250 to 499 employees	-	20	7.2	137.8	5.3	11.0	94.2	269.3	519.5	798.5	25.1	141.2
500 to 999 employees	-	7	10.2	244.5	7.3	13.4	156.8	539.4	768.6	1 344.0	67.4	190.2
1,000 to 2,499 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2,500 employees or more	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Industry 3357-14, Without Wiredrawing												
Total	-	**280**	**28.5**	**499.7**	**20.7**	**39.2**	**313.2**	**1 195.8**	**1 897.2**	**3 127.2**	**122.2**	**501.7**
Establishments with an average of—												
1 to 4 employees	E8	28	.1	.9	(Z)	.1	.7	2.2	4.7	7.0	.2	1.1
5 to 9 employees	E8	27	2.5	41.0	1.7	3.6	24.2	89.1	162.8	253.6	15.7	35.5
10 to 19 employees	E4	39	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	E2	52	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	-	49	3.5	53.9	2.5	4.9	32.3	116.1	199.4	329.2	11.2	46.4
100 to 249 employees	-	57	9.1	158.4	6.7	13.1	101.1	358.2	550.5	922.0	35.2	159.7
250 to 499 employees	-	21	7.3	118.7	5.2	9.8	73.7	265.4	395.0	663.0	32.4	119.8
500 to 999 employees	-	5	6.2	126.6	4.3	7.8	81.3	364.8	584.9	952.4	27.4	139.3
1,000 to 2,499 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	42	.4	4.6	.3	.6	3.2	9.4	20.8	30.8	.6	5.0
INDUSTRY 3398, METAL HEAT TREATING												
Total	**E1**	**758**	**17.7**	**324.2**	**13.5**	**26.9**	**216.6**	**684.5**	**416.0**	**1 128.2**	**42.5**	**98.1**
Establishments with an average of—												
1 to 4 employees	E7	109	.3	4.5	.2	.5	3.5	13.6	3.8	17.5	.6	1.2
5 to 9 employees	E5	154	1.1	17.6	.8	1.7	12.3	43.5	13.7	57.5	2.8	4.1
10 to 19 employees	E2	206	2.9	51.4	2.2	4.4	34.6	109.3	40.4	151.9	7.3	14.6
20 to 49 employees	E1	210	6.3	116.1	4.8	9.6	76.6	223.0	110.3	350.2	14.6	26.0
50 to 99 employees	E1	60	4.0	79.2	3.0	6.1	51.2	169.8	156.2	326.7	9.5	31.6
100 to 249 employees	-	18	3.1	55.3	2.4	4.7	38.3	125.3	91.6	224.3	7.8	20.6
500 to 999 employees	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	150	.8	10.5	.6	1.3	7.4	29.3	10.0	39.7	1.5	3.4
INDUSTRY 3399, PRIMARY METAL PRODUCTS, N.E.C.												
Total	-	**249**	**8.2**	**173.4**	**5.6**	**10.6**	**101.4**	**313.5**	**595.2**	**938.1**	**51.7**	**369.6**
Establishments with an average of—												
1 to 4 employees	E8	87	.2	2.5	.1	.2	2.0	5.0	7.6	13.0	.6	4.2
5 to 9 employees	E5	42	.3	4.5	.2	.4	3.2	11.2	14.1	25.6	.7	5.1
10 to 19 employees	E1	40	.6	9.5	.4	.8	6.8	10.2	42.0	52.4	3.6	14.2
20 to 49 employees	-	44	1.4	27.8	1.0	2.0	17.2	55.2	104.5	163.3	8.1	31.8
50 to 99 employees	-	19	1.3	26.5	.9	1.6	14.3	48.5	84.7	135.1	3.8	44.4
100 to 249 employees	-	12	1.9	41.3	1.2	2.3	23.3	98.5	144.2	247.0	14.4	160.1
250 to 499 employees	-	4	2.7	61.3	1.7	3.3	34.6	85.0	198.0	301.7	20.5	109.9
1,000 to 2,499 employees	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	68	.2	2.4	.1	.2	1.9	4.6	8.2	13.4	.5	4.3

See footnotes at end of table.

Table 4. Industry Statistics by Employment Size of Establishment: 1982—Con.

Note: For qualifications of data, see footnotes on table 1a. Data shown as a (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at time data were tabulated. The following symbols are shown for those States where estimated data based on administrative records data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-unit companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1982 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective size classes shown.

Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1982

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. Statistics for establishments with specialization ratios of less than 75 percent are included in total lines but are not shown as a separate class. In addition, data may not be shown for various reasons; e.g., to avoid disclosing data for individual companies. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Industry or product class code	Industry or product class by percent of specialization	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3351	**Copper rolling and drawing:**										
	Entire industry	137	23.3	468.2	17.2	32.6	322.9	957.7	2 267.0	3 270.0	123.9
	Establishments with 75 percent specialization or more	117	19.8	390.8	14.8	27.9	268.5	803.7	1 868.6	2 715.3	109.7
33511	Copper and copper-base alloy wire:										
	Establishments with this product class primary	17	2.9	51.2	2.2	4.5	35.1	114.0	247.3	363.5	19.2
	Establishments with 75 percent specialization or more in class	14	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33513	Copper and copper-base alloy rod, bar, and shapes:										
	Establishments with this product class primary	22	5.0	108.0	3.5	6.6	74.5	199.0	727.2	940.5	30.8
	Establishments with 75 percent specialization or more in class	17	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33514	Copper and copper-base alloy sheet, strip, and plate:										
	Establishments with this product class primary	24	9.0	195.8	6.5	12.1	131.1	425.2	677.9	1 124.8	59.1
	Establishments with 75 percent specialization or more in class	16	4.5	104.7	3.1	6.1	67.7	249.7	361.1	603.7	47.6
33515	Copper and copper-base alloy pipe and tube:										
	Establishments with this product class primary	35	6.0	107.8	4.7	8.8	78.3	210.8	592.5	810.4	10.7
	Establishments with 75 percent specialization or more in class	34	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3353	**Aluminum sheet, plate, and foil:**										
	Entire industry	57	27.8	863.7	21.0	40.0	641.1	1 156.2	5 911.3	7 228.7	260.4
	Establishments with 75 percent specialization or more	52	27.0	847.7	20.4	38.8	629.9	1 127.3	5 814.9	7 099.7	258.9
33531	Aluminum plate:										
	Establishments with this product class primary	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Establishments with 75 percent specialization or more in class	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33532	Aluminum sheet and strip:										
	Establishments with this product class primary	29	25.7	810.8	19.4	36.7	601.9	1 103.1	5 513.6	6 760.2	247.1
	Establishments with 75 percent specialization or more in class	22	18.9	600.6	14.4	27.3	451.6	966.6	4 356.7	5 402.3	179.1
33533	Plain aluminum foil:										
	Establishments with this product class primary	9	1.7	44.8	1.3	2.7	33.8	39.0	355.9	410.6	12.4
	Establishments with 75 percent specialization or more in class	3	.4	10.0	.3	.6	7.5	14.1	89.6	98.0	.4
33534	Aluminum welded tube:										
	Establishments with this product class primary	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Establishments with 75 percent specialization or more in class	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3354	**Aluminum extruded products:**										
	Entire industry	193	25.4	499.0	19.3	38.0	344.1	859.3	1 778.5	2 673.1	114.7
	Establishments with 75 percent specialization or more	178	21.4	400.9	16.4	32.3	275.5	776.8	1 458.4	2 252.5	75.9
33541	Extruded aluminum rod, bar, and other shapes:										
	Establishments with this product class primary	141	22.5	436.7	17.0	33.7	298.1	716.3	1 563.2	2 310.1	106.2
	Establishments with 75 percent specialization or more in class	119	15.0	251.4	11.5	23.0	170.3	513.7	1 053.4	1 567.7	46.5
33542	Aluminum extruded and drawn tube:										
	Establishments with this product class primary	22	2.7	58.1	2.1	3.9	43.0	136.7	202.1	343.2	8.1
	Establishments with 75 percent specialization or more in class	17	1.4	24.7	1.1	2.2	18.4	65.7	123.1	187.9	6.4
3355	**Aluminum rolling and drawing, n.e.c.:**										
	Entire industry	27	2.6	65.0	1.9	3.5	44.2	30.7	535.3	670.8	5.5
	Establishments with 75 percent specialization or more	22	1.3	26.0	1.0	1.7	18.3	18.2	309.4	341.5	1.8
33551	Aluminum and aluminum-base alloy wire:										
	Establishments with this product class primary	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Establishments with 75 percent specialization or more in class	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33552	Rolled aluminum rod, bar, and structural shapes:										
	Establishments with this product class primary	9	1.4	33.4	1.1	1.8	23.4	69.5	276.7	363.5	2.4
	Establishments with 75 percent specialization or more in class	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33553	Aluminum ingot, except extrusion billet:										
	Establishments with this product class primary	9	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Establishments with 75 percent specialization or more in class	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33554	Aluminum extrusion billet:										
	Establishments with this product class primary	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Establishments with 75 percent specialization or more in class	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

See footnotes at end of table.

Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1982—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. Statistics for establishments with specialization ratios of less than 75 percent are included in total lines but are not shown as a separate class. In addition, data may not be shown for various reasons; e.g., to avoid disclosing data for individual companies. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Industry or product class code	Industry or product class by percent of specialization	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3356	**Nonferrous rolling and drawing, n.e.c.:**										
	Entire industry	169	20.0	472.2	12.6	24.0	263.7	993.3	2 293.9	3 418.3	134.4
	Establishments with 75 percent specialization or more	152	18.2	435.6	11.5	22.2	244.0	913.2	2 158.2	3 192.7	124.6
33561	Nickel and nickel-base alloy mill shapes:										
	Establishments with this product class primary	15	6.0	138.0	3.1	5.6	63.2	225.9	388.4	700.1	37.2
	Establishments with 75 percent specialization or more in class	14	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33562	Titanium mill shapes:										
	Establishments with this product class primary	14	3.6	97.8	2.4	4.6	59.6	232.6	325.1	577.8	49.0
	Establishments with 75 percent specialization or more in class	13	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33563	Precious metal mill shapes:										
	Establishments with this product class primary	24	3.3	72.5	2.5	4.6	45.5	166.1	1 166.0	1 341.3	13.0
	Establishments with 75 percent specialization or more in class	22	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33569	All other nonferrous metal mill shapes:										
	Establishments with this product class primary	55	6.6	157.5	4.3	8.6	91.8	349.6	390.4	757.5	31.4
	Establishments with 75 percent specialization or more in class	46	5.5	134.1	3.6	7.3	78.6	299.6	307.5	619.2	26.3
3357	**Nonferrous wiredrawing and insulating:**										
	Entire industry	441	67.7	1 271.6	50.0	95.7	837.5	2 831.1	5 266.4	8 224.5	294.7
	Establishments with 75 percent specialization or more	406	62.8	1 178.4	46.4	89.4	783.1	2 631.4	4 914.3	7 669.2	270.9
33571	Aluminum and aluminum-base alloy wire and cable, produced in nonferrous wiredrawing plants (also see code 33551):										
	Establishments with this product class primary	15	1.8	41.6	1.3	2.4	28.1	43.6	358.7	400.4	(D)
	Establishments with 75 percent specialization or more in class	7	.4	7.7	.3	.5	-	(Z)	91.4	88.0	1.2
33572	Copper and copper-base alloy wire:										
	Establishments with this product class primary	22	3.2	55.6	2.6	5.0	41.3	114.6	235.5	354.9	12.1
	Establishments with 75 percent specialization or more in class	17	2.5	42.7	2.1	4.0	32.5	91.3	158.7	251.4	10.6
33573	Other bare nonferrous metal wire:										
	Establishments with this product class primary	9	.8	15.0	.5	1.1	8.7	29.8	87.4	122.8	2.5
	Establishments with 75 percent specialization or more in class	7	.6	12.3	.4	.9	7.1	17.4	56.2	79.4	2.2
33575	Nonferrous wire cloth and other woven wire products, produced in wiredrawing plants (also see code 34965):										
	Establishments with this product class primary	4	.6	7.9	.5	.9	7.1	16.2	20.0	37.7	(D)
	Establishments with 75 percent specialization or more in class	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33576	Apparatus wire and cord and flexible cord sets, produced in wiredrawing plants (also see code 36996):										
	Establishments with this product class primary	36	6.3	91.3	5.0	9.6	61.5	185.3	265.4	465.7	14.0
	Establishments with 75 percent specialization or more in class	28	4.0	53.4	3.2	5.9	37.1	105.3	119.6	231.4	6.5
33577	Magnet wire:										
	Establishments with this product class primary	36	4.8	96.5	3.6	7.1	65.1	244.1	564.6	817.1	17.6
	Establishments with 75 percent specialization or more in class	28	4.1	83.1	3.1	6.0	55.6	229.1	513.5	751.5	13.3
33578	Power wire and cable:										
	Establishments with this product class primary	29	6.4	127.9	4.6	9.1	83.8	241.4	489.3	765.5	14.5
	Establishments with 75 percent specialization or more in class	21	3.6	73.6	2.5	5.2	48.5	162.3	263.4	442.1	9.5
33579	Fiber optic cable:										
	Establishments with this product class primary	5	.4	8.3	.2	.4	3.1	5.4	24.3	30.3	4.8
	Establishments with 75 percent specialization or more in class	5	.4	8.3	.2	.4	3.1	5.4	24.3	30.3	4.8
3357A	Electonic wire and cable:										
	Establishments with this product class primary	80	13.9	252.2	9.6	18.6	151.4	591.6	784.3	1 357.8	65.3
	Establishments with 75 percent specialization or more in class	60	9.5	169.7	6.7	13.0	106.9	420.0	595.4	999.8	30.3
3357B	Telephone and telegraph wire and cable:										
	Establishments with this product class primary	40	12.7	294.5	9.7	17.9	204.7	791.1	959.6	1 761.0	75.3
	Establishments with 75 percent specialization or more in class	37	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3357C	Control and signal wire and cable:										
	Establishments with this product class primary	12	2.9	50.7	2.0	3.7	30.7	73.8	127.4	213.2	20.5
	Establishments with 75 percent specialization or more in class	5	.7	13.3	.5	1.1	8.4	25.6	28.8	56.6	4.2
3357D	Building wire and cable:										
	Establishments with this product class primary	34	6.5	106.5	4.8	9.4	70.6	230.4	868.5	1 127.5	22.6
	Establishments with 75 percent specialization or more in class	23	3.8	59.4	2.7	5.4	38.0	155.4	573.7	754.4	15.4
3357E	Other insulated wire and cable, including automotive:										
	Establishments with this product class primary	28	4.8	85.4	3.6	6.5	55.0	169.2	380.4	573.7	20.9
	Establishments with 75 percent specialization or more in class	12	1.9	30.8	1.5	2.7	20.1	53.6	125.6	187.9	5.2
3398	**Metal heat treating:**										
	Entire industry	758	17.7	324.2	13.5	26.9	216.6	684.5	416.0	1 128.2	42.5
	Establishments with 75 percent specialization or more	746	17.3	317.4	13.2	26.3	212.2	671.2	409.8	1 108.8	42.1

See footnotes at end of table.

Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1982—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. Statistics for establishments with specialization ratios of less than 75 percent are included in total lines but are not shown as a separate class. In addition, data may not be shown for various reasons; e.g., to avoid disclosing data for individual companies. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Industry or product class code	Industry or product class by percent of specialization	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3399	**Primary metal products, n.e.c.:**										
	Entire industry	249	8.2	173.4	5.6	10.6	101.4	313.5	595.2	938.1	51.7
	Establishments with 75 percent specialization or more	232	5.7	118.3	4.0	7.6	74.0	263.2	423.0	706.7	35.8
33991	Metal powders, paste, and flakes:										
	Establishments with this product class primary	83	6.5	140.7	4.2	8.1	79.4	259.1	495.2	774.0	46.7
	Establishments with 75 percent specialization or more in class	72	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33992	Primary metal products, n.e.c.:										
	Establishments with this product class primary	41	1.1	22.2	.8	1.5	14.1	48.7	65.1	122.3	3.3
	Establishments with 75 percent specialization or more in class	38	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry-Product Analysis—Value of Shipments and Primary Product Shipments, Specialization and Coverage Ratios for the Industry: 1982 and Earlier Census Years

[An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work. Columns A-D show this product pattern for an industry, and column E shows primary product specialization ratio. The extent to which an industry's primary products are shipped by establishments classified in and out of an industry is shown in columns F-H and coverage ratio is shown in column I. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and product group code	Industry and census year	Value of shipments					Value of primary product shipments			
		Total (million dollars)	Primary products (million dollars)	Secondary products (million dollars)	Miscellaneous receipts (million dollars)	Primary product specialization ratio Col. B÷ Col. B+C (percent)	Total made in all industries (million dollars)	Made in this industry (million dollars)	Made in other industries (million dollars)	Coverage ratio Col. B÷ Col. F (percent)
		A	B	C	D	E	F	G	H	I
3351	Copper rolling and drawing 1982	3 270.0	2 796.4	319.4	154.2	90	2 941.6	2 796.4	145.1	95
	1977	4 013.8	3 248.7	568.5	196.6	85	3 536.1	3 248.7	287.4	92
	1972	3 098.8	2 629.5	339.1	130.2	89	2 825.0	2 629.5	195.5	93
3353	Aluminum sheet, plate, and foil 1982	7 228.7	6 425.0	363.8	439.9	95	6 519.7	6 425.0	94.7	99
	1977	5 924.0	5 334.3	482.9	106.8	92	5 358.8	5 334.3	24.5	99
	1972	2 685.2	2 214.7	389.6	80.9	85	2 238.0	2 214.7	23.3	99
3354	Aluminum extruded products 1982	2 673.1	2 319.2	291.1	62.8	89	2 550.5	2 319.2	231.3	91
	1977	2 050.0	1 766.2	235.3	48.4	88	1 928.2	1 766.2	162.0	92
	1972	1 078.3	902.8	148.6	26.9	85	1 026.4	902.8	123.6	88
3355	Aluminum rolling and drawing, n.e.c. 1982	670.8	506.1	151.8	12.8	77	6 959.4	506.1	6 453.3	7
	1977	1 001.0	884.2	84.6	32.2	91	7 010.1	884.2	6 125.9	'13
	1972	343.4	286.8	45.9	10.7	86	2 807.7	286.8	2 520.9	'10
3356	Nonferrous rolling and drawing, n.e.c. 1982	3 418.3	3 157.1	197.2	64.0	94	3 421.1	3 157.1	264.0	92
	1977	2 676.5	2 441.1	159.5	75.9	94	2 734.5	2 441.1	393.4	'89
	1972	1 244.6	990.4	191.6	62.6	84	1 135.1	990.4	144.7	87
3357	Nonferrous wiredrawing and insulating 1982	8 224.5	7 753.4	272.3	198.8	97	8 808.7	7 753.4	1 055.3	88
	1977	6 595.4	5 986.5	379.2	229.7	94	6 974.6	5 986.5	988.1	'86
	1972	4 412.3	4 002.2	253.5	156.6	94	4 500.1	4 002.2	497.9	89
3398	Metal heat treating 1982	1 128.2	1 073.8	11.6	42.7	(1)	1 105.9	1 073.8	32.1	(1)
	1977	744.9	649.5	8.2	87.2	(1)	704.1	649.5	54.6	(1)
	1972	467.4	462.9	4.0	.5	(1)	(NA)	462.9	(NA)	(1)
3399	Primary metal products, n.e.c. 1982	938.1	784.3	116.8	36.9	87	959.0	784.3	174.6	82
	1977	750.6	676.3	43.2	31.2	94	967.5	676.3	291.2	70
	1972	348.3	307.0	28.0	13.3	92	416.5	307.0	109.5	74

[1]Relationships are not meaningful because of predominance of miscellaneous receipts, particularly receipts for contract and commission work on materials owned by others.

Table 5c-1. Industry-Product Analysis—Shipments by Product Class and Industry: 1982

[Million dollars. Table shows where products of an industry (referred to as primary and listed in table 6a) are made and what products are made by establishments classified in an industry. Read down an industry column to find what products are produced in an industry. Only those product groups that have at least $2 million in shipments from establishments classified in one of industries included in this chapter are shown. Read across to determine where products of industries in this chapter are produced. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column. Specified "Other industries" are listed in table 5c-2 if they account for more than $5 million of products primary to this chapter. For meaning of abbreviations and symbols, see explanatory text. For explanation of terms, see appendixes]

1982 product code	Product group, product class, and miscellaneous receipts	All industries	Copper rolling and drawing (SIC 3351)	Aluminum sheet, plate, and foil (SIC 3353)	Aluminum extruded products (SIC 3354)	Aluminum rolling and drawing, n.e.c. (SIC 3355)	Nonferrous rolling and drawing, n.e.c. (SIC 3356)	Nonferrous wire-drawing and insulating (SIC 3357)	Metal heat treating (SIC 3398)	Primary metal products, n.e.c. (SIC 3399)	Other industries
	Total	(X)	3 270.0	7 228.7	2 673.1	670.8	3 418.3	8 224.5	1 128.2	938.1	(X)
	Primary products	(X)	2 796.4	6 425.0	2 319.2	506.1	3 157.1	7 753.4	1 073.8	784.3	(X)
	Secondary products	(X)	319.4	363.8	291.1	151.8	197.2	272.3	11.6	116.8	(X)
	Miscellaneous receipts	(X)	154.2	439.9	62.8	12.8	64.0	198.8	42.7	36.9	(X)
3351-	**Copper rolling and drawing**	2 941.6	2 796.4	-	(D)	-	17.1	58.8	-	-	(D)
33511	Copper and copper-base alloy wire	346.4	310.2	-	-	-	-	(D)	-	-	(D)
33513	Copper and copper-base alloy rod, bar, and shapes	921.0	844.5	-	(D)	-	(D)	(D)	-	-	(D)
33514	Copper and copper-base alloy sheet, strip, and plate	800.8	797.3	-	-	-	(D)	(D)	-	-	(D)
33515	Copper and copper-base alloy pipe and tube	845.0	816.1	-	-	-	(D)	(D)	-	-	(D)
33510	Rolled and drawn copper, n.s.k.	28.3	28.3	-	-	-	-	-	-	-	-
3353-	**Aluminum sheet, plate, and foil**	6 519.7	(D)	6 425.0	(D)	-	(D)	-	-	-	88.1
33531	Aluminum plate	378.6	(D)	(D)	(D)	-	-	-	-	-	-
33532	Aluminum sheet and strip	5 555.5	-	5 520.8	(D)	-	(D)	-	-	-	(D)
33533	Plain aluminum foil	545.1	-	(D)	-	-	-	-	-	-	(D)
33534	Aluminum welded tube	29.8	-	(D)	-	-	-	-	-	-	(D)
33530	Aluminum sheet, plate, and foil, n.s.k.	10.8	-	(D)	-	-	-	-	-	-	(D)
3354-	**Aluminum extruded products**	2 550.5	22.6	(D)	2 319.2	(D)	(D)	-	-	-	71.7
33541	Extruded aluminum rod, bar, and other shapes	2 100.4	(D)	(D)	1 908.7	(D)	(D)	-	-	-	(D)
33542	Aluminum extruded and drawn tube	430.1	(D)	(D)	(D)	-	(D)	-	-	-	(D)
33540	Aluminum extruded products, n.s.k.	20.1	-	-	(D)	-	-	-	-	-	(D)
3355-	**Aluminum rolling and drawing, n.e.c.**	919.1	13.8	(D)	126.3	506.1	(D)	(D)	-	-	(D)
33551	Aluminum and aluminum-base alloy wire	201.5	(D)	(D)	(D)	157.3	-	(D)	-	-	-
33552	Rolled aluminum rod, bar, and structural shapes	285.5	-	(D)	(D)	(D)	(D)	(D)	-	-	(D)
33553	Aluminum ingot, except extrusion billet	(D)	(D)	(D)	6.1	(D)	-	-	-	-	-
33554	Aluminum extrusion billet	(D)	-	9.3	(D)	117.9	-	-	-	-	(D)
33550	Aluminum rolling and drawing, n.e.c., n.s.k.	19.0	-	-	-	19.0	-	-	-	-	-
3356-	**Nonferrous rolling and drawing, n.e.c.**	3 305.0	14.0	-	37.5	(D)	3 157.1	(D)	-	(D)	86.6
33561	Nickel and nickel-base alloy mill shapes	637.3	(D)	-	-	-	627.7	-	-	(D)	(D)
33562	Titanium mill shapes	609.2	(D)	-	(D)	-	(D)	-	-	-	3.2
33563	Precious metal mill shapes	1 261.6	-	-	-	-	(D)	(D)	-	-	-
33569	All other nonferrous metal mill shapes	757.2	(D)	-	(D)	-	659.8	-	-	-	77.7
33560	Rolled and drawn nonferrous metals, n.e.c., n.s.k.	39.7	-	-	-	(D)	(D)	-	-	(D)	(D)
3357-	**Nonferrous wiredrawing and insulating**	8 188.1	(D)	-	-	(D)	-	7 753.4	-	-	279.6
33571	Aluminum and aluminum-base alloy wire and cable, produced in nonferrous wiredrawing plants (also see code 33551)	284.9	-	-	-	-	-	(D)	-	-	(D)
33572	Copper and copper-base alloy wire	402.3	(D)	-	-	-	-	(D)	-	-	(D)
33573	Other bare nonferrous metal wire	116.1	(D)	-	-	-	-	105.6	-	-	(D)
33575	Nonferrous wire cloth and other woven wire products, produced in wiredrawing plants (also see code 34965)	39.1	(D)	-	-	-	-	31.8	-	-	(D)
33576	Apparatus wire and cord and flexible cord sets, produced in wiredrawing plants (also see code 36996)	477.6	-	-	-	-	-	442.7	-	-	34.9
33577	Magnet wire	747.0	-	-	-	-	-	(D)	-	-	(D)
33578	Power wire and cable	854.5	-	-	-	(D)	-	(D)	-	-	(D)
33579	Fiber optic cable	88.6	(D)	-	-	-	-	85.8	-	-	(D)
3357A	Electonic wire and cable	1 304.4	-	-	-	-	-	1 241.7	-	-	(D)
3357B	Telephone and telegraph wire and cable	1 815.2	(D)	-	-	-	-	(D)	-	-	(D)
3357C	Control and signal wire and cable	248.8	-	-	-	-	-	(D)	-	-	(D)
3357D	Building wire and cable	1 083.6	-	-	-	(D)	-	1 077.3	-	-	(D)
3357E	Other insulated wire and cable, including automotive	550.6	-	-	-	(D)	-	501.5	-	-	(D)
33570	Nonferrous wiredrawing and insulating, n.s.k.	175.4	-	-	-	-	-	(D)	-	-	(D)
33980	**Metal heat treating**	1 105.9	(D)	-	-	-	-	-	1 073.8	(D)	(D)
3399-	**Primary metal products, n.e.c.**	959.0	(D)	(D)	(D)	-	22.7	-	(D)	784.3	143.8
33991	Metal powders, and flakes	799.1	(D)	(D)	(D)	-	(D)	-	(D)	642.3	(D)
33992	Primary metal products, n.e.c.	119.9	-	-	-	-	(D)	-	-	103.2	(D)
33990	Primary metal products, n.e.c., n.s.k.	40.0	-	-	-	-	-	-	-	38.9	1.2
	OTHER SHIPMENTS BY FOUR-DIGIT PRODUCT GROUP										
2531-	Public building and related furniture	(X)	-	-	(D)	-	-	-	-	-	(X)
2819-	Industrial inorganic chemicals, n.e.c.	(X)	-	-	-	-	(D)	-	-	(D)	(X)
3079-	Miscellaneous plastics products	(X)	(D)	(D)	-	-	-	(D)	-	(D)	(X)
3264-	Porcelain electrical supplies	(X)	-	-	-	-	(D)	-	-	-	(X)
3315-	Steel wire and related products	(X)	-	-	-	-	-	42.2	-	-	(X)
3316-	Cold finishing of steel shapes	(X)	(D)	-	-	-	(D)	-	-	-	(X)
3339-	Primary nonferrous metals, n.e.c.	(X)	-	-	-	-	(D)	-	-	-	(X)
3341-	Secondary nonferrous metals	(X)	(D)	(D)	(D)	-	42.6	-	-	(D)	(X)
3369-	Nonferrous castings, n.e.c.	(X)	-	-	-	-	13.2	-	-	(D)	(X)
3442-	Metal doors, sash, and trim	(X)	-	-	25.6	-	-	-	-	-	(X)
3444-	Sheet metal work	(X)	(D)	13.8	(D)	-	(D)	-	-	-	(X)
3449-	Miscellaneous metal work	(X)	-	-	(D)	(D)	-	-	-	-	(X)
3451-	Screw machine products	(X)	(D)	-	-	-	-	-	-	-	(X)
3463-	Nonferrous forgings	(X)	(D)	-	(D)	-	(D)	-	-	-	(X)
3471-	Plating and polishing	(X)	-	-	(D)	-	-	-	(D)	-	(X)
3494-	Valves and pipe fittings	(X)	(D)	-	-	-	-	-	(D)	-	(X)
3497-	Metal foil and leaf	(X)	-	105.6	-	(D)	(D)	-	-	-	(X)
3499-	Fabricated metal products, n.e.c.	(X)	-	-	(D)	(D)	-	-	(D)	42.3	(X)
3545-	Machine tool accessories	(X)	-	-	-	-	-	-	-	(D)	(X)
3559-	Special industry machinery, n.e.c.	(X)	(D)	-	-	-	-	(D)	(D)	-	(X)
3599-	Machinery, except electrical, n.e.c.	(X)	-	-	-	-	-	(D)	(D)	-	(X)
3643-	Current-carrying wiring devices	(X)	-	-	-	-	-	(D)	-	(D)	(X)
3644-	Noncurrent-carrying wiring devices	(X)	-	-	-	-	-	31.1	-	-	(X)
3646-	Commercial lighting fixtures	(X)	-	-	-	-	-	(D)	-	-	(X)

See footnotes at end of table.

Table 5c-1. Industry-Product Analysis—Shipments by Product Class and Industry: 1982—Con.

[Million dollars. Table shows where products of an industry (referred to as primary and listed in table 6a) are made and what products are made by establishments classified in an industry. Read down an industry column to find what products are produced in an industry. Only those product groups that have at least $2 million in shipments from establishments classified in one of industries included in this chapter are shown. Read across to determine where products of industries in this chapter are produced. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column. Specified "Other industries" are listed in table 5c-2 if they account for more than $5 million of products primary to this chapter . For meaning of abbreviations and symbols, see explanatory text. For explanation of terms, see appendixes]

1982 product code	Product group, product class, and miscellaneous receipts	All industries	Copper rolling and drawing (SIC 3351)	Aluminum sheet, plate, and foil (SIC 3353)	Aluminum extruded products (SIC 3354)	Aluminum rolling and drawing, n.e.c. (SIC 3355)	Nonferrous rolling and drawing, n.e.c. (SIC 3356)	Nonferrous wire-drawing and insulating (SIC 3357)	Metal heat treating (SIC 3398)	Primary metal products, n.e.c. (SIC 3399)	Other industries
	OTHER SHIPMENTS BY FOUR-DIGIT PRODUCT GROUP—Con.										
3661-	Telephone and telegraph apparatus	(X)	-	-	-	-	-	(D)	-	-	(X)
3662-	Radio and TV communication equipment	(X)	-	-	-	-	-	(D)	-	-	(X)
3678-	Electronic connectors	(X)	-	-	-	-	-	8.7	-	-	(X)
3679-	Electronic components, n.e.c.	(X)	-	-	(D)	-	(D)	(D)	-	-	(X)
3699-	Electrical equipment and supplies, n.e.c.	(X)	-	-	-	-	-	2.7	-	-	(X)
3714-	Motor vehicle parts and accessories	(X)	-	-	(D)	-	-	(D)	-	-	(X)
3728-	Aircraft equipment, n.e.c.	(X)	-	-	-	-	(D)	-	-	-	(X)
3823-	Process control instruments	(X)	-	-	-	-	-	(D)	-	-	(X)
3843-	Dental equipment and supplies	(X)	-	-	-	-	(D)	-	-	-	(X)
	MISCELLANEOUS RECEIPTS										
93000 00	Receipts for work done for others on their materials	(X)	(D)	(D)	11.6	(D)	3.8	20.5	4.9	17.5	(X)
93000 86	Receipts for conversion of steel for other companies, including fees received from both steel-producing and nonsteel companies	(X)	-	-	-	-	-	(D)	-	-	(X)
93000 87	Receipts for processing (rolling, drawing, extruding, etc.) of materials owned by others on a toll basis for nonferrous metal mill shapes	(X)	100.9	49.1	12.8	(D)	28.3	38.5	-	(D)	(X)
99980 13	Sales of scrap and refuse	(X)	11.0	(D)	13.6	(D)	12.8	(D)	2.4	5.5	(X)
99980 61	Receipts for repair work	(X)	-	-	(D)	-	-	-	(D)	-	(X)
99980 98	Other miscellaneous receipts, including receipts for repair work, etc.	(X)	(D)	.8	5.8	(D)	(D)	51.8	1.3	(D)	(X)
99980 00	Miscellaneous receipts, n.s.k.	(X)	(D)	-	(D)	-	(D)	1.0	(D)	-	(X)
99989 00	Sales of products bought and resold without further manufacture, processing, or assembly at establishment	(X)	23.9	(D)	18.1	(D)	12.8	86.1	33.8	12.9	(X)

Table 5c-2. Industry-Product Analysis—Other Industries With Shipments of Primary Products: 1982

[Million dollars. Table is a continuation of table 5c-1 and shows where products of industries in this chapter (referred to as primary products and listed in table 6a) are made. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column of table 5c-1. Specified "Other industries" are listed in this table if they account for more than $5 million of products primary to this chapter. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

1982 product code	Other industries	Value
3351-	**COPPER ROLLING AND DRAWING**	
	3317 Steel pipe and tubes	(D)
	3362 Brass, bronze, and copper foundries	(D)
	3644 Noncurrent-carrying wiring devices	(D)
	3661 Telephone and telegraph apparatus	(D)
3353-	**ALUMINUM SHEET, PLATE, AND FOIL**	
	3497 Metal foil and leaf	(D)
	3644 Noncurrent-carrying wiring devices	(D)
3354-	**ALUMINUM EXTRUDED PRODUCTS**	
	3442 Metal doors, sash, and trim	(D)
	3444 Sheet metal work	(D)
	3644 Noncurrent-carrying wiring devices	(D)
3355-	**ALUMINUM ROLLING AND DRAWING, N.E.C.**	
	3334 Primary aluminum	(D)
3356-	**NONFERROUS ROLLING AND DRAWING, N.E.C.**	
	3315 Steel wire and related products	(D)
	3339 Primary nonferrous metals, n.e.c.	(D)
	3341 Secondary nonferrous metals	15.7
3357-	**NONFERROUS WIREDRAWING AND INSULATING**	
	3079 Miscellaneous plastics products	29.5
	3315 Steel wire and related products	(D)
	3334 Primary aluminum	(D)
	3634 Electric housewares and fans	(D)
	3643 Current-carrying wiring devices	40.2
	3661 Telephone and telegraph apparatus	(D)
	3678 Electronic connectors	10.8
	3679 Electronic components, n.e.c.	(D)
	3694 Engine electrical equipment	(D)
	3714 Motor vehicle parts and accessories	(D)
	3823 Process control instruments	(D)
	3861 Photographic equipment and supplies	(D)
3398-	**METAL HEAT TREATING**	
	3471 Plating and polishing	9.7
3399-	**PRIMARY METAL PRODUCTS, N.E.C.**	
	2819 Industrial inorganic chemicals, n.e.c.	(D)
	3313 Electrometallurgical products	(D)
	3321 Gray iron foundries	(D)
	3334 Primary aluminum	(D)
	3339 Primary nonferrous metals, n.e.c.	(D)
	3341 Secondary nonferrous metals	27.4
	3545 Machine tool accessories	(D)
	3714 Motor vehicle parts and accessories	(D)

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Part A. Industries 3351, 3353, 3354, 3355, 3356, and 3357

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982							
		Number of companies with shipments of $100,000 or more	Quantity of total production	Product shipments[1]					
				Total, including interplant transfers		Commercial		Interplant transfers	
				Quantity[2]	Value (million dollars)	Quantity	Value (million dollars)	Quantity	Value (million dollars)
	COPPER ROLLING AND DRAWING								
3351- —	**Total**	**(NA)**	**(X)**	**(X)**	**2 941.6**	**(X)**	**2 468.3**	**(X)**	**473.3**
33511 —	Copper and copper-base alloy wire, bare and tinned (nonelectrical) (1,000 s tons)	(NA)	115.4	119.8	346.4	79.6	279.5	40.2	66.7
33511 11	Unalloyed (do)	11	61.5	59.8	181.9	79.6	279.5	40.2	66.9
33511 31	Alloyed (do)	24	53.9	60.0	164.6				
33511 00	Copper and copper-base alloy wire, bare and tinned (nonelectrical), n.s.k.	(NA)	(X)	(X)	–	(X)	–	(X)	–
33513 —	Copper and copper-base alloy rod, bar, and shapes (1,000 s tons)	(NA)	866.3	697.0	921.0	476.2	635.5	220.8	285.5
33513 11	Unalloyed copper bars and shapes and nonelectrical rod (do)	13	464.4	375.5	403.4	180.2	160.9	195.3	242.5
33513 32	Copper-base alloy rod, bar, and shapes (do)	29	401.9	321.5	517.6	296.0	474.6	25.5	43.0
33513 00	Copper and copper-base alloy rod, bar, and shapes, n.s.k.	(NA)	(X)	(X)	–	(X)	–	(X)	–
33514 —	Copper and copper-base alloy sheet, strip, and plate (1,000 s tons)	(NA)	468.3	430.3	800.8	386.8	726.0	43.5	74.9
33514 13	Unalloyed copper flat products (sheet, strip, plate, foil, etc.) (do)	15	122.3	105.4	206.0	386.8	726.0	43.5	74.9
33514 35	Copper-base alloy flat products (sheet, strip, plate, and foil), including military cups and discs (net weight) (do)	23	346.0	324.9	594.8				
33514 00	Copper and copper-base alloy sheet, strip, and plate, n.s.k.	(NA)	(X)	(X)	–	(X)	–	(X)	–
33515 —	Copper and copper-base alloy pipe and tube (1,000 s tons)	(NA)	353.5	350.0	845.0	318.3	798.9	31.7	46.1
	Unalloyed:								
33515 16	Pipe and tube, plumbing (do)	14	223.6	*221.7	435.5	264.2	586.0	31.2	45.1
33515 18	Other pipe and tube (do)	13	76.6	73.7	195.6				
	Alloyed:								
33515 36	Pipe and tube, plumbing (do)	12	9.6	11.6	49.4	54.1	212.3	.5	1.0
33515 38	Other pipe and tube (do)	19	43.7	43.0	163.9				
33515 00	Copper and copper-base alloy pipe and tube, n.s.k.	(NA)	(X)	(X)	.6	(X)	.6	(X)	–
33510 00	Copper rolling and drawing, n.s.k., typically for establishments with 20 employees or more (see note)	(NA)	(X)	(X)	19.2	(X)	19.2	(X)	–
33510 02	Copper rolling and drawing, n.s.k., typically for establishments with less than 20 employees (see note)	(NA)	(X)	(X)	9.1	(X)	9.1	(X)	–
	ALUMINUM SHEET, PLATE, AND FOIL								
3353- —	**Total (1,000 s tons)**	**(NA)**	**(X)**	**(X)**	**6 519.7**	**(X)**	**5 097.5**	**(X)**	**1 422.3**
33531 —	Aluminum plate (do)	(NA)	(X)	(X)	378.6	(X)	360.8	(X)	17.8
	Plate (0.25 inches or more), including continuous cast:								
33531 13	Heat-treatable (do)	7	72.0	69.3	246.6	(D)	(D)	(D)	(D)
33531 15	Nonheat-treatable (do)	7	49.3	50.4	132.0	(D)	(D)	(D)	(D)
33531 00	Aluminum plate, n.s.k.	(NA)	(X)	(X)	–	(X)	–	(X)	–
33532 —	Aluminum sheet and strip, including continuous cast (1,000 s tons)	(NA)	(X)	2 477.8	5 555.5	1 772.0	4 300.5	705.8	1 255.0
33532 23	Flat, heat-treatable (do)	8	38.9	35.6	119.0				
33532 25	Flat, nonheat-treatable, bare and precoated (including only permanent finishes such as enameling and vinyl coating, but excluding coatings which are applied only for temporary protection) (do)	10	120.1	117.9	224.0	141.0	315.0	12.5	28.1
33532 27	Coiled, heat-treatable (do)	10	514.0	442.3	812.3	258.6	528.5	183.7	283.7
33532 31	Coiled, nonheat-treatable, bare (do)	16	2 065.0	1 511.9	3 560.6	1 094.6	2 831.4	417.3	729.2
33532 33	Coiled, nonheat-treatable, precoated (including only permanent finishes such as enameling and vinyl coating, but excluding coatings which are applied only for temporary protection) (do)	14	364.9	370.1	826.3	277.8	612.4	92.3	214.0
33532 00	Aluminum sheet and strip, including continuous cast, n.s.k.	(NA)	(X)	(X)	13.2	(X)	13.2	(X)	–
33533 —	Plain aluminum foil:								
33533 00	Plain aluminum foil (less than .006 inches) (1,000 s tons)	12	245.3	240.4	545.1	(D)	(D)	(D)	(D)
33534 —	Aluminum welded tube:								
33534 00	Welded aluminum tube (do)	6	12.4	12.6	29.8	(D)	(D)	(D)	(D)
33530 00	Aluminum sheet, plate, and foil, n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	(X)	(X)	7.2	(X)	7.2	(X)	–
33530 02	Aluminum sheet, plate, and foil, n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	(X)	(X)	3.6	(X)	3.6	(X)	–
	ALUMINUM EXTRUDED PRODUCTS								
3354- —	**Total**	**(NA)**	**(X)**	**(X)**	**2 550.5**	**(X)**	**2 384.0**	**(X)**	**166.6**
33541 —	Extruded aluminum rod, bar, and other extruded shapes	(NA)	(X)	(X)	2 100.4	(X)	1 969.3	(X)	131.1
	Extruded rod and bar:								
33541 15	Alloys, other than 2000 and 7000 series (1,000 s tons)	44	214.6	*219.4	472.6	258.0	590.0	39.5	82.4
33541 18	Alloys in 2000 and 7000 series (do)	15	83.6	78.1	199.8				

See footnotes at end of table.

of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of

1982—Con.		1977										
				Product shipments[1]								
				Total, including interplant transfers		Commercial		Interplant transfers				
Quantity of shipments of products made from materials owned by others	Quantity produced and consumed in the same plant in the manufacture of other products	Number of companies with shipments of $100,000 or more	Quantity of total production	Quantity[2]	Value (million dollars)	Quantity	Value (million dollars)	Quantity	Value (million dollars)	Quantity of shipments of products made from materials owned by others	Quantity produced and consumed in the same plant in the manufacture of other products	1982 product code
327.7	**121.1**	**(NA)**	**(NA)**	**[3]2 090.3**	**[3]3 536.1**	**[3]1 627.6**	**[3]2 870.9**	**462.7**	**665.2**	**(NA)**	**(NA)**	**3351- --**
8.3	7.9	(NA)	62.0	60.9	170.7	53.9	155.5	7.0	15.2	3.5	.8	33511 --
8.3	7.9	6	13.0	13.0	41.3	13.0	41.3	–	–	3.5	–	33511 11
		21	49.0	47.9	129.4	40.9	114.2	7.0	15.2		.8	33511 31
–	–	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	33511 00
187.6	83.1	(NA)	1 478.0	[3]1 080.8	[3]1 491.3	[3]747.3	[3]1 028.4	333.5	462.9	363.3	65.0	33513 --
187.6	83.1	16	1 022.6	725.4	965.6	428.0	558.0	297.4	407.6	363.3	65.0	33513 11
		28	450.6	350.6	519.1	314.5	463.8	36.1	55.3			33513 32
–	–	(NA)	[4]4.8	[4]4.8	[4]6.6	[4]4.8	[4]6.6	–	–	–	–	33513 00
120.9	20.4	(NA)	560.7	504.1	937.3	402.7	782.2	101.4	155.1	118.5	51.1	33514 --
120.9	20.4	11	127.0	126.5	234.6	r106.5	201.7	19.8	32.9	5.5	51.1	33514 13
		23	433.7	377.6	702.7	296.0	580.5	81.6	122.2	113.0		33514 35
–	–	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	33514 00
10.9	1.8	(NA)	456.6	[3]420.8	[3]895.5	[3]400.0	[3]863.5	20.8	32.0	(D)	27.3	33515 --
10.3	9.7	13	225.9	229.3	436.9	291.9	r596.4	18.9	28.3	(D)	(D)	33515 16
		11	118.6	81.5	187.8					39.9	13.6	33515 18
.6	7.1	8	28.1	27.9	55.7	27.9	55.7	–	–	–	(D)	33515 36
		18	81.0	79.1	208.8	77.2	205.1	1.9	3.7	2.4	(D)	33515 38
–	–	(NA)	[4]3.0	[4]3.0	[4]6.3	[4]3.0	[4]6.3	–	–	–	–	33515 00
–	–	(NA)	(NA)	r11.5	[4]20.4	[4]11.5	[4]20.4	–	–	(X)	(X)	33510 00
–	–	(NA)	(NA)	[4]12.2	[4]20.9	[4]12.2	[4]20.9	–	–	(X)	(X)	33510 02
207.6	**21.7**	**(NA)**	**[3]4 111.5**	**[3]3 864.6**	**5 358.8**	**(NA)**	**(NA)**	**(NA)**	**(NA)**	**(NA)**	**(NA)**	**3353- --**
(D)	–	(NA)	145.5	143.2	247.3	103.2	191.6	40.0	55.7	–	–	33531 --
(D)	–	8	79.0	76.9	146.8	60.9	119.8	16.0	27.0	–	–	33531 13
(D)	–	8	66.5	66.3	100.5	42.3	71.8	24.0	28.7	–	–	33531 15
–	–	(NA)	(X)	(X)	–	(X)	–	(X)	–	(X)	(X)	33531 00
(D)	21.7	(NA)	3 536.1	3 383.6	4 569.6	2 440.9	3 317.1	942.7	1 252.4	–	–	33532 --
		9	87.3	92.8	166.1	74.6	133.2	18.2	32.9	–	–	33532 23
2.0	6.0											
		11	334.6	317.8	462.2	(D)	(D)	(D)	(D)	–	–	33532 25
(D)	15.7	7	440.5	433.3	533.8	(D)	(D)	(D)	(D)	(D)	(D)	33532 27
(D)		14	2 343.6	2 231.7	2 950.3	1 580.7	2 080.7	651.0	869.6	60.1	(D)	33532 31
1.9	–	12	330.1	308.0	457.1	244.3	366.0	63.7	91.1	(D)	(D)	33532 33
–	–	(NA)	(X)	(X)	–	(X)	–	(X)	–	(X)	(X)	33532 00
												33533 --
(D)	(D)	12	384.6	296.1	476.6	191.6	303.1	104.5	173.5	(D)	88.2	33533 00
												33534 --
(D)	(D)	8	43.6	39.1	61.6	(D)	(D)	(D)	(D)	–	(D)	33534 00
–	–	(NA)	(X)	(X)	–	(X)	–	(X)	–	(X)	(X)	33530 00
–	–	(NA)	[3]2.6	[3]2.6	3.7	(NA)	(NA)	(NA)	(NA)	(X)	(X)	33530 02
(D)	**(D)**	**(NA)**	**(X)**	**(X)**	**1 928.2**	**(X)**	**(NA)**	**(X)**	**(NA)**	**(X)**	**(X)**	**3354- --**
(D)	(D)	(NA)	(X)	(X)	1 541.9	(X)	(NA)	(X)	(NA)	(X)	(X)	33541 --
(D)	(D)	29	192.1	190.9	305.7	152.6	252.9	38.3	52.8	(D)	(D)	33541 15
		11	82.9	76.2	124.1	48.3	87.0	27.9	37.1	(D)	–	33541 18

Table 6a–1. Product and Product Classes—Quantity and Value of Shipments by All Part A. Industries 3351, 3353, 3354, 3355, 3356, and 3357—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982							
		Number of companies with shipments of $100,000 or more	Quantity of total production	Product shipments[1]					
				Total, including interplant transfers		Commercial		Interplant transfers	
				Quantity[2]	Value (million dollars)	Quantity	Value (million dollars)	Quantity	Value (million dollars)
	ALUMINUM EXTRUDED PRODUCTS—Con.								
33541 —	Extruded aluminum rod, bar, and other extruded shapes — Con.								
	Other extruded shapes, except tube:								
33541 25	Alloys, other than 2000 and 7000 series ---- 1,000 s tons	70	504.7	493.2	1 100.3	575.9	1 336.1	29.4	48.7
33541 28	Alloys in 2000 and 7000 series ---- do	17	112.9	112.1	284.4				
33541 00	Extruded aluminum rod, bar, and other extruded shapes, n.s.k. ----	(NA)	(X)	(X)	43.2	(X)	43.2	(X)	-
33542 —	Aluminum extruded and drawn tube ---- 1,000 s tons	(NA)	(X)	(X)	430.1	(X)	394.6	(X)	35.5
	Aluminum tube and other extruded and drawn products:								
33542 51	Extruded ---- do	41	138.2	*133.5	300.2	146.3	385.0	19.2	35.5
33542 53	Drawn ---- do	9	31.1	32.1	120.2				
33542 00	Aluminum extruded and drawn tube, n.s.k. ----	(NA)	(X)	(X)	9.6	(X)	9.6	(X)	-
33540 00	Aluminum extruded products, n.s.k., typically for establishments with 10 employees or more (see note) ----	(NA)	(X)	(X)	11.0	(X)	11.0	(X)	-
33540 02	Aluminum extruded products, n.s.k., typically for establishments with less than 10 employees (see note) ----	(NA)	(X)	(X)	9.1	(X)	9.1	(X)	-
	ALUMINUM ROLLING AND DRAWING, N.E.C. (SEE TABLE 6a–2 FOR SEPARATE INDUSTRY DATA)								
3355– — 33571 — 33347 — 33348 — 33417 — 33418 —	**Total ---- 1,000 s tons**	**(NA)**	**(X)**	**(X)**	**6 959.4**	**(X)**	**3 768.0**	**(X)**	**3 191.4**
	Made in rolling mills ---- do	(NA)	(X)	(X)	919.1	(X)	-	(X)	-
	Made in other industries ---- do	(NA)	(X)	(X)	6 040.3	(X)	-	(X)	-
33551 — 33571 —	Aluminum and aluminum-base alloy wire and cable, except covered or insulated, including ACSR ---- do	(NA)	(X)	202.9	486.4	166.8	427.8	36.8	58.6
	Wire and cable, except insulated:								
33551 11 33571 11	Bare wire for electrical transmission ---- do	12	135.3	123.5	182.4	90.9	136.7	32.6	45.6
33551 51 33571 51	Bare wire, other than for electrical transmission ---- do	15	40.3	37.6	103.8	(D)	(D)	(D)	(D)
33551 61 33571 61	Aluminum cable steel reinforced (ACSR) (gross weight) ---- do	7	105.4	99.3	162.8	(D)	(D)	(D)	(D)
33551 65 33571 65	Other aluminum cable, bare ---- do	5	25.0	24.5	36.9	(D)	(D)	(D)	(D)
33551 00 33571 00	Aluminum and aluminum-base alloy wire and cable, including ACSR, n.s.k. ----	(NA)	(X)	(X)	.5	(X)	.5	(X)	-
33552 —	Rolled aluminum rod, bar (including continuous cast), and structural shapes ---- 1,000 s tons	(NA)	(X)	(X)	285.5	(X)	178.1	(X)	107.4
33552 22	Rolled ---- do	6	100.8	**100.6	162.0	103.7	158.6	65.4	107.4
33552 25	Continuous cast ---- do	6	90.3	68.5	104.0				
33552 00	Rolled aluminum rod, bar, and structural shapes, n.s.k. ----	(NA)	(X)	(X)	19.5	(X)	19.5	(X)	-
33347 — 33417 — 33553 —	Aluminum ingot ---- 1,000 s tons	(NA)	7 336.7	4 656.1	5 337.4	2 098.0	2 645.4	2 558.1	2 692.0
33348 — 33418 — 33554 —	Aluminum extrusion billet ---- do	(NA)	1 052.1	738.2	831.1	415.2	497.6	323.0	333.4
33550 00	Aluminum rolling and drawing, n.e.c., n.s.k., typically for establishments with 10 employees or more (see note) ----	(NA)	(X)	(X)	15.4	(X)	15.4	(X)	-
33550 02	Aluminum rolling and drawing, n.e.c., n.s.k., typically for establishments with less than 10 employees (see note) ----	(NA)	(X)	(X)	3.6	(X)	3.6	(X)	-
	ROLLED AND DRAWN NONFERROUS METALS, EXCEPT COPPER AND ALUMINUM (SEE TABLE 6a–2 FOR SEPARATE INDUSTRY DATA)								
3356– — 33573 —	**Total ----**	**(NA)**	**(X)**	**(X)**	**3 421.1**	**(X)**	**(NA)**	**(X)**	**(NA)**
	Produced in rolling mills ----	(NA)	(X)	(X)	3305.0	(X)	(NA)	(X)	(NA)
	Produced in wiredrawing plants ----	(NA)	(X)	(X)	116.1	(X)	(NA)	(X)	(NA)
33561 —	Nickel and nickel-base alloy mill shapes (including nickel–copper alloys) ---- 1,000 s tons	(NA)	28.4	28.5	637.3	(D)	(D)	(D)	(D)
33561 61	Plate, sheet, and strip, excluding nickel-copper alloys ---- do	8	12.1	12.1	201.4	(D)	(D)	(6)	(D)
33561 64	Other nickel shapes, excluding nickel-copper alloys ---- do	12	25.0	25.0	301.8	(D)	(D)	(D)	(D)
33561 65	Nickel-copper alloys, all shapes and forms, except wire ---- do	7	17.8	17.5	134.1	(D)	(D)	(D)	(D)
33561 00	Nickel and nickel-base alloy mill shapes, n.s.k. ----	(NA)	(X)	(X)	-	(X)	-	(X)	-

See footnotes at end of table.

Producers: 1982 and 1977—Con.

of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of

1982—Con.		1977										
				Product shipments[1]								
				Total, including interplant transfers		Commercial		Interplant transfers				
Quantity of shipments of products made from materials owned by others	Quantity produced and consumed in the same plant in the manufacture of other products	Number of companies with shipments of $100,000 or more	Quantity of total production	Quantity[2]	Value (million dollars)	Quantity	Value (million dollars)	Quantity	Value (million dollars)	Quantity of shipments of products made from materials owned by others	Quantity produced and consumed in the same plant in the manufacture of other products	1982 product code
												33541 —
(D)	(D)	61	578.2	552.0	960.2	546.1	995.2	72.2	106.7	5.2	19.7	33541 25
		12	63.4	66.3	141.7					-		33541 28
(D)	(Z)	(NA)	(X)	(X)	10.2	(X)	(NA)	(X)	(NA)	(X)	(X)	33541 00
(D)	(D)	(NA)	(X)	(X)	333.0	(X)	(NA)	(X)	(NA)	(X)	(X)	33542 —
(D)	(D)	30	140.4	131.8	223.2	163.8	303.6	17.7	27.6	-	10.8	33542 51
		11	47.0	49.7	108.0							33542 53
-	-	(NA)	(X)	(X)	1.9	(X)	(NA)	(X)	(NA)	(X)	(X)	33542 00
-	-	(NA)	(X)	(X)	36.0	(X)	(NA)	(X)	(NA)	(X)	(X)	33540 00
-	-	(NA)	(X)	(X)	17.3	(X)	(NA)	(X)	(NA)	(X)	(X)	33540 02
												3355— —
												33571 —
												33347 —
												33348 —
-	-	(NA)	8 562.1	6 928.0	7 010.1	(D)	(D)	(D)	(D)	(D)	(D)	33417 —
												33418 —
-	-	(NA)	2 431.9	1 178.6	1 367.5	(D)	(D)	(D)	(D)	(D)	(D)	
-	-	(NA)	6 130.2	5 749.4	5 642.6	(D)	(D)	(D)	(D)	(D)	(D)	
												33551 —
(D)	(D)	(NA)	349.8	290.4	387.5	266.5	356.0	23.9	31.4	(D)	66.5	33571 —
(D)	8.9	(NA)	146.7	85.5	132.1	(D)	(D)	(D)	(D)	(D)	(D)	33551 11
												33571 11
(D)	(D)	(NA)	46.8	43.9	77.5	(D)	(D)	(D)	(D)	-	(D)	33551 51
												33571 51
												33551 61
(D)	(D)	(NA)	[5]151.0	[5]171.8	[5]171.8	(D)	(D)	(D)	(D)	(D)	(D)	33571 61
-	(D)	(NA)	([5])	([5])	([5])	(D)	(D)	(D)	(D)	(D)	(D)	33551 65
												33571 65
												33551 00
-	-	-	-	-	-	-	-	-	-	-	-	33571 00
(D)	(D)	(X)	430.3	432.7	530.0	249.7	318.0	183.0	212.0	(D)	(D)	33552 —
(D)	(D)	6	243.9	239.2	316.4	143.3	196.6	95.9	119.8	(D)	(D)	33552 22
(D)	(D)	5	186.1	193.3	213.3	106.2	121.1	87.1	92.2	(D)	-	33552 25
-	-	(NA)	.3	.2	.3	.2	.3	-	-	-	-	33552 00
												33347 —
												33417 —
(D)	(D)	(NA)	6 514.8	5 364.8	5 229.2	2 139.0	2 070.2	3 225.8	3 153.6	193.5	1 119.9	33553 —
												33348 —
(D)	(D)	(NA)	1 267.2	840.1	863.3	398.8	415.4	447.7	445.7	179.6	221.1	33418 —
												33554 —
-	-	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	33550 00
-	-	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	33550 02
-	5.4	(NA)	(NA)	(NA)	2 734.5	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	3356— —
												33573 —
-	5.4	(NA)	(NA)	(NA)	2 616.5	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	
-	5.4	16	(NA)	(NA)	117.9	(D)	(D)	(D)	(D)	(D)	(D)	
-	(Z)	(NA)	143.8	137.9	873.2	(D)	(D)	(D)	(D)	(D)	(D)	33561 —
(D)	(D)	11	24.0	23.5	163.6	(D)	(D)	(D)	(D)	(D)	(D)	33561 61
(D)	(D)	10	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	33561 64
-	(D)	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	-	(D)	33561 65
-	-	(NA)	([6])	([6])	1.9	(NA)	(NA)	(NA)	(NA)	-	-	33561 00

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Part A. Industries 3351, 3353, 3354, 3355, 3356, and 3357—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982							
		Number of companies with shipments of $100,000 or more	Quantity of total production	Product shipments[1]					
				Total, including interplant transfers		Commercial		Interplant transfers	
				Quantity[2]	Value (million dollars)	Quantity	Value (million dollars)	Quantity	Value (million dollars)
	ROLLED AND DRAWN NONFERROUS METALS, EXCEPT COPPER AND ALUMINUM (SEE TABLE 6a-2 FOR SEPARATE INDUSTRY DATA)—Con.								
33562 —	Titanium mill shapes ---- 1,000 s tons	(NA)	24.6	25.5	609.2	15.6	533.4	9.9	75.8
33562 72	Ingot ---- do	9	14.9	14.3	128.2	(D)	(D)	(D)	(D)
33562 74	Forging and extrusion billet ---- do	7	12.8	12.8	165.9	(D)	(D)	(D)	(D)
33562 79	Other titanium mill products (sheet, plate, tubing, bar, etc.), except wire ---- do	18	16.8	17.9	315.1	(D)	(D)	(D)	(D)
33562 00	Titanium mill shapes, n.s.k. ----	(NA)	(X)	(X)	–	(X)	–	(X)	–
33563 —	Precious metal mill shapes ---- troy oz	(NA)	83 317.7	77 788.9	1 261.6	(D)	(D)	(D)	(D)
33563 82	Gold ---- do	17	2 441.5	2 142.1	720.1	(D)	(D)	(D)	(D)
33563 84	Silver ---- do	9	66 974.6	66 821.3	462.9	(D)	(D)	(D)	(D)
33563 86	Platinum ---- do	4	18 901.6	8 825.5	77.4	(D)	(D)	(D)	(D)
33563 89	Other ---- do	4				(D)	(D)	(D)	(D)
33563 00	Precious metal mill shapes, n.s.k. ----	(NA)	(X)	(X)	1.2	(X)	1.2	(X)	–
33569 — 33573 —	All other nonferrous metal mill shapes ----	(NA)	(X)	(X)	873.3	(X)	(X)	(X)	(X)
33569 34	Magnesium and magnesium-base alloy mill shapes, including rod, bar, sheet, plate, etc., but excluding powder and wire ---- 1,000 s tons	8	33.6	33.4	90.5	(D)	(D)	(D)	(D)
	Lead and lead-base alloy mill shapes:								
33569 51	Plate, sheet, and strip ---- do	9	19.7	33.6	24.1	33.6	24.1	–	–
33569 55	Pipe and tubing, traps, and bends ---- do	7	(D)	(D)	(D)	(D)	6.9	(D)	–
33569 59	Other rolled, drawn, or extruded lead products ---- do	21	34.2	45.5	86.6	44.9	85.4	.5	1.3
33569 71	Zinc and zinc-base alloy mill shapes, including plate, sheet, strip, rods, bars, pipe, and tubing (excluding wire) ---- do	3	(D)	(D)	(D)	(D)	(D)	–	–
	Other nonferrous metal-rolled, drawn, and extruded shapes:								
33569 92 33573 —	Nonferrous wire, except copper and aluminum ---- do	34	546.6	546.5	282.6	(D)	(D)	(D)	(D)
	Other:								
33569 94	Tungsten ---- do	5	(Z)	*.1	7.9	.1	7.9	–	–
33569 96	Molybdenum ---- do	4	.2	1.3	33.5	(D)	(D)	(D)	(D)
33569 98	Other ---- do	14	22.6	22.6	311.9	22.6	311.9	–	–
33569 00	Other nonferrous metal mill shapes, n.s.k. ----	(NA)	(X)	(X)	.6	(X)	.6	(X)	–
33560 00	Rolled and drawn nonferrous metals, n.s.k., typically for establishments with 20 employees or more (see note) ----	(NA)	(X)	(X)	16.1	(X)	16.2	(X)	–
33560 02	Rolled and drawn nonferrous metals, n.s.k., typically for establishments with less than 20 employees (see note) ----	(NA)	(X)	(X)	23.6	(X)	23.5	(X)	–
	NONFERROUS WIREDRAWING AND INSULATING (SEE TABLE 6a-2 FOR SEPARATE INDUSTRY DATA)								
3357— — 33551 — 33569 92 34965 — 34996 —	**Total** ----	**(NA)**	**(X)**	**(X)**	**8 808.9**	**(X)**	**(X)**	**(X)**	**(X)**
	Made in wiredrawing and insulating industry ----	(NA)	(X)	(X)	8 188.1	(X)	(X)	(X)	(X)
	Made in other industries ----	(NA)	(X)	(X)	620.6	(X)	(X)	(X)	(X)
33571 — 33551 —	Aluminum and aluminum-base alloy wire (including ACSR) ---- 1,000 s tons	(NA)	(X)	202.9	486.4	166.8	427.8	36.8	58.6
	Wire and cable (except covered or insulated):								
33571 11 33551 11	Bare wire for electrical transmission ---- do	12	135.3	123.5	182.4	90.9	136.7	32.6	45.6
33571 51 33551 51	Bare wire for other than electrical transmission ---- do	15	40.3	37.6	103.8	(D)	(D)	(D)	(D)
33551 61 33571 61	Aluminum cable, steel reinforced (ACSR) (gross weight) ---- do	7	105.4	99.3	162.8	(D)	(D)	(D)	(D)
33571 65 33551 65	Other aluminum cable, bare ---- do	5	25.0	24.5	36.9	(D)	(D)	(D)	(D)
33571 00 33551 00	Aluminum and aluminum-base alloy wire, including ACSR, n.s.k. ----	(NA)	(X)	(X)	.5	(X)	.5	–	–
33572 —	Copper and copper-base alloy wire (including strand and cable, bare and tinned, for electrical transmission ----	(NA)	(X)	(X)	402.3	(X)	326.4	(X)	75.9
33572 21	Electrical wire rod ---- 1,000 s tons	4	(7)	(7)	(7)	(7)	(7)	(7)	(7)
33572 11	Bare wire, unalloyed, for electrical transmission ---- do	15	151.5	59.9	114.2	43.6	88.7	16.3	25.5
33572 51	Bare wire, alloyed, for electrical transmission ---- do	8	7102.6	**49.6	774.8	722.0	737.7	727.6	737.1
33572 71	Strand and cable, bare, for electrical transmission ---- do	22	118.7	*68.0	155.4	58.5	142.1	9.5	13.3
33572 00	Copper and copper-base alloy wire, n.s.k. ---- do	(NA)	(X)	(X)	57.9	(X)	57.9	(X)	–
33573 — 33569 92	Other bare nonferrous metal wire ---- do	34	*546.6	*546.6	282.6	(D)	(D)	(D)	(D)
33575 — 34965 —	Nonferrous wire cloth and other woven wire products ---- do	(NA)	(X)	(X)	120.7	(X)	(X)	(X)	(X)
33575 17 34965 17	Insect wire screening, nonferrous ---- do	6	(X)	456.7	53.1	456.7	53.1	–	–
33575 57 34965 57	Paper machine wire cloth (fourdrinier and cylinder) ---- do	5	(X)	38.5	19.8	38.5	19.8	–	–

See footnotes at end of table.

of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of

1982—Con.		1977										
				Product shipments[1]								
				Total, including interplant transfers		Commercial		Interplant transfers				
Quantity of shipments of products made from materials owned by others	Quantity produced and consumed in the same plant in the manufacture of other products	Number of companies with shipments of $100,000 or more	Quantity of total production	Quantity[2]	Value (million dollars)	Quantity	Value (million dollars)	Quantity	Value (million dollars)	Quantity of shipments of products made from materials owned by others	Quantity produced and consumed in the same plant in the manufacture of other products	1982 product code
–	.6	(NA)	34.4	30.2	250.7	(D)	(D)	(D)	(D)	(D)	(D)	33562 —
(D)	(D)	6	18.9	16.1	80.7	(D)	(D)	(D)	(D)	(D)	(D)	33562 72
–	(D)	6	6.1	5.2	42.2	5.2	42.2	–	–	(D)	(D)	33562 74
(D)	(D)	12	9.4	8.9	127.7	(D)	(D)	(D)	(D)	(D)	(D)	33562 79
–	–	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	33562 00
–	–	(NA)	(NA)	(NA)	751.7	(D)	(D)	(D)	(D)	(S)	–	33563 —
(D)	(D)	16	(S)	1 860.3	343.7	(D)	(D)	(D)	(D)	(S)	–	33563 82
(D)	–	15	(S)	57 174.4	273.6	(D)	(D)	(D)	(D)	(S)	–	33563 84
–	–	8	(S)	(D)	123.9	(D)	(D)	(D)	(D)	(NA)	(NA)	33563 86
11 227.5	–	9	(NA)	(NA)						–	–	33563 89
–	–	(NA)	(NA)	(NA)	10.5	(NA)	(NA)	(NA)	(NA)	–	–	33563 00
–	5.4	(NA)	(NA)	(NA)	311.9	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	33569 — 33573 —
8.1	(NA)	213	20.5	48.2	20.5	48.2	–	–	(D)	(D)	–	33569 34
(D)	–	11	18.8	18.7	32.8	18.7	32.8	–	–	–	(D)	33569 51
(D)	(Z)	6	9.5	9.5	6.4	(D)	(D)	(D)	(D)	–	–	33569 55
(D)	.1	12	21.6	21.3	65.6	18.7	63.5	–	–	(D)	–	33569 59
(D)	(D)	10	104.4	90.9	81.1	(D)	(D)	(D)	(D)	(D)	–	33569 71
–	5.4	(NA)	(NA)	(NA)	311.9	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	33569 92 33573 —
–	–	7	3.8	2.0	45.3	2.0	45.3	–	–	(D)	–	33569 94
–	–	4	.9	1.1	55.8	(D)	(D)	(D)	(D)	–	–	33569 96
(D)	(D)	17	12.9	2.3	117.3	(D)	(D)	(D)	(D)	–	–	33569 98
–	–	(NA)	(NA)	(NA)	15.7	(NA)	(NA)	(NA)	(NA)	–	–	33569 00
–	–	(NA)	(NA)	(NA)	46.0	(NA)	(NA)	(NA)	(NA)	(X)	(X)	33560 00
–	–	(NA)	(NA)	(NA)	32.8	(NA)	(NA)	(NA)	(NA)	(X)	(X)	33560 02
–	–	**(NA)**	**(X)**	**(X)**	6 **974.6**	**(NA)**	**(NA)**	**(NA)**	**(NA)**	**(NA)**	**(NA)**	3357– — 33551 — 33569 92 34965 — 34996 —
–	–	(NA)	(X)	(X)	6 460.3	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	
–	–	(NA)	(X)	(X)	514.3	(D)	(D)	(D)	(D)	(D)	(D)	
(D)	(D)	(NA)	349.7	290.4	387.5	266.4	355.4	23.9	31.4	(D)	74.1	33571 — 33551 —
–	(D)	(NA)	146.7	93.9	130.1	(D)	(D)	(D)	(D)	–	(D)	33571 11 33551 11
(D)	(D)	(NA)	46.8	43.9	77.5	(D)	(D)	(D)	(D)	–	(D)	33571 51 33551 51
(D)	(D)	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	33551 61 33571 61
(D)	4.5	(NA)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	33571 65 33551 65
–	–	(NA)	–	–	–	–	–	–	–	–	–	33571 00 33551 00
–	129.4	(NA)	405.6	280.0	496.8	164.1	327.3	113.9	169.5	92.2	107.3	33572 —
(7)	(7)	7	82.4	25.8	35.7	98.3	193.1	73.0	113.0	79.8	78.7	33572 21
9.0	77.4	27	201.1	133.0	230.3							33572 11
74.0	730.6	10	14.6	**12.5	40.1							33572 51
16.2	21.4	19	107.6	**106.7	190.7	65.8	134.2	40.9	56.7	12.4	28.6	33572 71
–	–	(NA)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	33572 00
(Z)	(Z)	(NA)	(NA)	(NA)	311.9	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	33573 — 33569 92
–	–	(NA)	(NA)	(NA)	160.6	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	33575 — 34965 —
–	–	7	(X)	**549.2	41.7	(X)	(X)	(X)	(X)	(X)	(X)	33575 17 34965 17
–	–	(NA)	(X)	(S)	87.9	(X)	(X)	(X)	(X)	(X)	(X)	33575 57 34965 57

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Part A. Industries 3351, 3353, 3354, 3355, 3356, and 3357—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982							
		Number of companies with shipments of $100,000 or more	Quantity of total production	Product shipments[1]					
				Total, including interplant transfers		Commercial		Interplant transfers	
				Quantity[2]	Value (million dollars)	Quantity	Value (million dollars)	Quantity	Value (million dollars)
	NONFERROUS WIREDRAWING AND INSULATING (SEE TABLE 6a-2 FOR SEPARATE INDUSTRY DATA)—Con.								
33575 — 34965 —	Nonferrous wire cloth and other woven wire products—Con.								
33575 65 34965 65	Industrial wire cloth, nonferrous ---------- 1,000 s tons	28	(X)	**13.7	47.5	13.7	47.5	-	-
33575 00 34965 00	Nonferrous wire cloth and woven wire products, n.s.k. ----------	(NA)	(X)	(X)	.2	-	.2	-	-
33576 — 36996 —	Apparatus wire and cord and flexible cord sets:								
	As reported in the census of manufactures ----------	(NA)	(X)	(X)	648.6	(X)	(X)	(X)	-
	As reported in the Current Industrial Report MA-33L, Insulated Wire and Cable (see table 6a-3 for detailed current industrial report data) ----------	(NA)	(X)	(X)	[8]585.6	(X)	(X)	(X)	-
33577 —	Magnet wire:								
	As reported in the census of manufactures ----------	41	(X)	(X)	747.0	(X)	(X)	(X)	-
	As reported in the Current Industrial Report MA-33L, Insulated Wire and Cable (see table 6a-3 for detailed current industrial report data) ----------	(NA)	(X)	(X)	739.2	(X)	(X)	(X)	-
33578 —	Power wire and cable:								
	As reported in the census of manufactures ----------	75	(X)	(X)	854.5	(X)	(X)	(X)	-
	As reported in the Current Industrial Report MA-33L, Insulated Wire and Cable (see table 6a-3 for detailed current industrial report data) ----------	(NA)	(X)	(X)	853.9	(X)	(X)	(X)	-
33579 —	Fiber optic cable ----------	16	(X)	(X)	88.6	(X)	(X)	(X)	-
33579 11	Communication uses (telephone, telegraph, and electronic) ----------	9	-	(X)	83.9	(X)	(X)	-	-
33579 21	All other uses ----------	5	-	(X)	4.7	(X)	(X)	-	-
33579 00	Fiber optic cable, n.s.k. ----------	(NA)	(X)	(X)	-	(X)	(X)	(X)	-
3357A —	Electonic wire and cable:								
	As reported in the census of manufactures ----------	132	(X)	(X)	1 304.4	(X)	(X)	(X)	-
	As reported in the Current Industrial Report MA-33L, Insulated Wire and Cable (see table 6a-3 for detailed current industrial report data) ----------	(NA)	(X)	(X)	1 303.5	(X)	(X)	(X)	-
3357B —	Telephone and telegraph wire and cable:								
	As reported in the census of manufactures ----------	75	(X)	(X)	1 815.2	(X)	(X)	(X)	-
	As reported in the Current Industrial Report MA-33L, Insulated Wire and Cable (see table 6a-3 for detailed current industrial report data) ----------	(NA)	(X)	(X)	1 814.4	(X)	(X)	(X)	-
3357C —	Control and signal wire and cable:								
	As reported in the census of manufactures ----------	60	(X)	(X)	248.8	(X)	(X)	(X)	-
	As reported in the Current Industrial Report MA-33L, Insulated Wire and Cable (see table 6a-3 for detailed current industrial report data) ----------	(NA)	(X)	(X)	247.5	(X)	(X)	(X)	-
3357D —	Building wire and cable:								
	As reported in the census of manufactures ----------	69	(X)	(X)	1 083.6	(X)	(X)	(X)	-
	As reported in the Current Industrial Report MA-33L, Insulated Wire and Cable (see table 6a-3 for detailed current industrial report data) ----------	(NA)	(X)	(X)	1 084.5	(X)	(X)	(X)	-
3357E —	Other insulated wire and cable, including automotive:								
	As reported in the census of manufactures ----------	86	(X)	(X)	550.6	(X)	(X)	(X)	-
	As reported in the Current Industrial Report MA-33L, Insulated Wire and Cable (see table 6a-3 for detailed current industrial report data) ----------	(NA)	(X)	(X)	539.9	(X)	(X)	(X)	-
33570 00	Nonferrous wiredrawing and insulating, n.s.k., typically for establishments with 20 employees or more (see note) ----------	(NA)	(X)	(X)	144.6	(X)	(X)	(X)	-
33570 02	Nonferrous wiredrawing and insulating, n.s.k., typically for establishments with less than 20 employees (see note) ----------	(NA)	(X)	(X)	30.8	(X)	(X)	(X)	-

of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of

1982—Con.		1977									1982 product code
				Product shipments[1]							
				Total, including interplant transfers		Commercial		Interplant transfers			
Quantity of shipments of products made from materials owned by others	Quantity produced and consumed in the same plant in the manufacture of other products	Number of companies with shipments of $100,000 or more	Quantity of total production	Quantity[2]	Value (million dollars)	Quantity	Value (million dollars)	Quantity	Value (million dollars)	Quantity of shipments of products made from materials owned by others	Quantity produced and consumed in the same plant in the manufacture of other products	
												33575 65
–	–	19	(X)	**10.9	31.0	(X)	(X)	(X)	(X)	(X)	(X)	34965 65
–	–	(NA)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	33575 00
												34965 00
												33576 —
–	–	(NA)	(X)	(X)	577.8	(X)	(X)	(X)	(X)	(X)	(X)	36996 —
–	–	(NA)	(X)	(X)	525.6	(X)	(X)	(X)	(X)	(X)	(X)	
												33577 —
–	–	29	(X)	(X)	754.4	(X)	(X)	(X)	(X)	(X)	(X)	
–	–	(NA)	(X)	(X)	748.1	(X)	(X)	(X)	(X)	(X)	(X)	
												33578 —
–	–	41	(X)	(X)	705.9	(X)	(X)	(X)	(X)	(X)	(X)	
–	–	(NA)	(X)	(X)	695.4	(X)	(X)	(X)	(X)	(X)	(X)	
–	–	(NA)										33579 —
–	–	(NA)	(X)	(X)	(NA)	(X)	(X)	(X)	(X)	(X)	(X)	33579 11
–	–	(NA)										33579 21
–	–	(NA)										33579 00
–	–	80	(X)	(X)	478.9	(X)	(X)	(X)	(X)	(X)	(X)	3357A —
–	–	(NA)	(X)	(X)	474.1	(X)	(X)	(X)	(X)	(X)	(X)	
–	–	31	(X)	(X)	1 600.2	(X)	(X)	(X)	(X)	(X)	(X)	3357B —
–	–	(NA)	(X)	(X)	1 619.8	(X)	(X)	(X)	(X)	(X)	(X)	
–	–	34	(X)	(X)	128.3	(X)	(X)	(X)	(X)	(X)	(X)	3357C —
–	–	(NA)	(X)	(X)	125.2	(X)	(X)	(X)	(X)	(X)	(X)	
–	–	35	(X)	(X)	890.2	(X)	(X)	(X)	(X)	(X)	(X)	3357D —
–	–	(NA)	(X)	(X)	875.4	(X)	(X)	(X)	(X)	(X)	(X)	
–	–	54	(X)	(X)	431.7	(X)	(X)	(X)	(X)	(X)	(X)	3357E —
–	–	(NA)	(X)	(X)	421.4	(X)	(X)	(X)	(X)	(X)	(X)	
–	–	(NA)	(X)	(X)	18.2	(X)	(X)	(X)	(X)	(X)	(X)	33570 00
–	–	(NA)	(X)	(X)	32.2	(X)	(X)	(X)	(X)	(X)	(X)	33570 02

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

Part B. Industry 3398 and 3399

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
	METAL HEAT TREATING						
3398- —	**Total**	**(NA)**	**(X)**	**1 105.9**	**(NA)**	**(NA)**	**704.1**
33980 —	Heat treating of metal for the trade:						
33980 00	Heat treating, pickling, annealing, etc., of metal for the trade	(NA)	(X)	1 066.2	(NA)	(NA)	704.1
33980 02	Metal heat treating, n.s.k., typically for establishments with less than 10 employees	(NA)	(X)	39.7			
	PRIMARY METAL PRODUCTS, N.E.C.						
3399- —	**Total**	**(NA)**	**(X)**	**959.0**	**(NA)**	**(X)**	**967.5**
33991 —	Metal powders, paste, and flakes	(NA)	(X)	799.1	(NA)	(X)	702.2
33991 11	Aluminum and aluminum-base alloy (aluminum content only) — mil lb	21	*181.0	155.3	15	132.0	109.9
33991 33	Copper and copper-base alloy (copper content only) — do	21	*38.7	64.9	15	60.1	69.6
33991 55	Iron and steel (iron content only) — do	25	*322.5	118.9	31	419.2	141.3
33991 66	Nickel-cobalt base superalloy materials — do	9	4.1	54.2	(NA)	(NA)	
33991 77	Tungsten and tungsten based alloys — do	11	9.1	178.4	(NA)	(NA)	
33991 86	Molybdenum — do	4	1.5	21.9	(NA)	(NA)	
33991 87	Titanium — do	3	(9)	(9)	(NA)	(NA)	369.9
33991 88	Tantalum — do	3	(9)	(9)	(NA)	(NA)	
33991 99	Other nonferrous powders, paste, and flakes (including precious metals) — do	27	9 79.1	9 205.1	41	(NA)	
33991 00	Metal powders, paste, and flakes, n.s.k.	(NA)	(X)	.3	(NA)	(X)	11.5
33992 —	Other primary metal products, n.e.c.	(NA)	(X)	119.9	(NA)	(X)	144.7
33992 11	Nonferrous nails, brads, tacks, and staples — 1,000 s tons	10	(S)	24.4	10	(S)	18.8
33992 98	Other primary metal products, n.e.c.	42	(X)	95.4	45	(X)	123.0
33992 00	Other primary metal products, n.e.c., n.s.k.	(NA)	(X)	-	(NA)	(X)	2.9
33990 00	Primary metal products, n.e.c., n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	(X)	26.6	(NA)	(X)	60.9
33990 02	Primary metal products, n.e.c., n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	(X)	13.4	(NA)	(X)	59.7

Note: In 1982 Census of Manufactures, data for establishments of small single-unit companies with up to 20 employees were estimated from administrative records data rather than data actually collected from respondents. Employment cutoff used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1982 and 1977 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

[1]Data reported by all producers, not just those with shipments of $100,000 or more.

[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[3]Includes estimated n.s.k. data.

[4]Data estimated.

[5]For 1977, product codes 33551 61, 33571 61, 33551 65, and 33571 65 were combined to avoid disclosing data for individual companies.

[6]For 1982, product code 33572 21 is combined with product code 33572 51 to avoid disclosing data of individual companies.

[7]Data are limited to the following (a) all known establishments which insulate wire and cable and (b) 50 largest producers of appliance wire, cord, and flexible cord sets from purchased wire.

[8]For 1982, product codes 33991 87 and 33991 88 are combined with product code 33991 99 to avoid disclosing data for individual companies.

Table 6a-2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1982 and 1977

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3355– — 33571 — 33347 — 33348 — 33417 — 33418 —	**Aluminum rolling and drawing, n.e.c.** ---- 1,000 s. tons	(NA)	(X)	6 959.4	(NA)	(X)	7 010.1
3355– —	Made in rolling mills ---- do	(NA)	(X)	919.1	(NA)	1 178.6	1 367.5
33571 — 33347 — 33348 — 33417 — 33418 —	Made in other industries ---- do	(NA)	(X)	6 040.3	(NA)	5 749.4	5 642.6
33551 — 33571 —	Aluminum and aluminum-base alloy wire and cable, including ACSR ---- do	(NA)	202.9	486.4	(NA)	290.4	387.5
33551 —	Made in industry 3355 (aluminum rolling and drawing, n.e.c.) ---- do	(NA)	104.8	201.5	(NA)	84.7	124.1
33571 —	Made in industry 3357 (nonferrous wiredrawing, etc.) and other industries ---- do	(NA)	98.1	284.9	(NA)	205.7	263.3
33551 11 33571 11	Bare wire for electrical transmision ---- do	12	123.5	182.4	(NA)	93.9	130.1
33551 11	Made in industry 3355 (aluminum rolling and drawing, n.e.c.) ---- do	4	46.2	73.3	4	41.8	53.8
33571 11	Made in industry 3357 (nonferrous wiredrawing, etc.) and other industries ---- do	8	77.3	109.0	16	52.1	76.3
33551 51 33571 51	Bare wire for other than electrical transmission ---- do	15	37.6	103.8	(NA)	43.9	77.5
33551 51	Made in industry 3355 (aluminum rolling and drawing, n.e.c.) ---- do	6	(D)	(D)	10	(D)	(D)
33571 51	Made in industry 3357 (nonferrous wiredrawing, etc.) and other industries ---- do	9	(D)	(D)	6	(D)	(D)
33551 61 33571 61	Aluminum cable, steel reinforced (ACSR) (gross weight) ---- do	7	99.3	162.8	(NA)	[3]151.0	[3]177.8
33551 61	Made in industry 3355 (aluminum rolling and drawing, n.e.c.) ---- do	2	(D)	(D)	3	([3])	([3])
33571 61	Made in industry 3357 (nonferrous wiredrawing, etc.) and other industries ---- do	5	(D)	(D)	9	([3])	([3])
33551 65 33571 65	Other aluminum cable, bare ---- do	5	24.5	36.9	(NA)	([3])	([3])
33551 65	Made in industry 3355 (aluminum rolling and drawing, n.e.c.) ---- do	1	(D)	(D)	1	([3])	([3])
33571 65	Made in industry 3357 (nonferrous wiredrawing, etc.) and other industries ---- do	4	(D)	(D)	4	([3])	([3])
33551 00 33571 00	Aluminum and aluminum-base alloy wire and cable, including ACSR, n.s.k. ----	(NA)	(X)	.5	(NA)	(X)	–
33551 00	Made in industry 3355 (aluminum rolling and drawing, n.e.c.) ----	(NA)	(X)	–	24	(NA)	194.0
33571 00	Made in industry 3357 (nonferrous wiredrawing, etc.) ----	(NA)	(X)	.5	(NA)	(X)	–
33553 — 33347 — 33417 —	Aluminum ingot ---- 1,000 s tons	(NA)	4 656.1	5 337.4	(NA)	5 364.8	5 229.2
33553 00	Made in aluminum rolling and drawing mills, n.e.c. (industries 3353, 3354, and 3355) ---- do	9	(D)	(D)	7	(D)	(D)
33347 00	Made in primary aluminum (industry 3354) and other primary nonferrous metal industries ---- do	15	3 371.8	4 007.0	12	3 791.3	3 721.5
33417 —	Made in secondary nonferrous metals industry (3341) and all other industries ---- do	61	(D)	(D)	66	(D)	(D)
33554 — 33348 — 33418 —	Aluminum extrusion billet ---- do	(NA)	738.2	831.1	(NA)	840.1	863.3
33554 00	Made in aluminum rolling and drawing mills, n.e.c. (industries 3353, 3354, and 3355) ---- do	16	(D)	(D)	10	(D)	(D)
33348 00	Made in primary aluminum industry (3334) and other primary nonferrous metal industries ---- do	11	421.5	492.1	11	566.6	570.0
33418 00	Made in secondary nonferrous metals industry (3341) and all other industries ---- do	9	(D)	(D)	10	(D)	(D)
33569 — 33573 —	All other nonferrous metal mill shapes ----	(NA)	(X)	873.3	(NA)	(X)	780.1
33569 —	Made in rolling mills (industry 3356) ----	(NA)	(X)	757.2	(NA)	(X)	662.2
33573 —	Made in wiredrawing plants (industry 3357) ----	(NA)	(X)	116.1	(NA)	(X)	117.9
33569 92	Nonferrous wire, except copper and aluminum made in rolling mills (industry 3356) ----	19	19.0	166.5	24	(NA)	194.0
3357– — 33551 — 33569 92 34965 — 36996 —	**Nonferrous wiredrawing and insulating** ----	(NA)	(X)	8 808.7	(NA)	(NA)	6 974.6
3357– —	Nonferrous wiredrawing and insulating ----	(NA)	(X)	8 188.1	(NA)	(NA)	6 460.3
33551 —	Aluminum and aluminum-base alloy wire and cable made in aluminum rolling mills (industries 3353, 3354, and 3355) ---- 1,000 s tons	(NA)	104.8	201.5	(NA)	84.7	124.2
33569 92	Other bare nonferrous metal wire made in nonferrous metal rolling and drawing, n.e.c. (industry 3356) ---- do	19	19.0	166.5	24	(NA)	194.0
34965 —	Nonferrous wire cloth and other woven wire products made in miscellaneous fabriated wire products, n.e.c. (industry 3496) ----	(NA)	(X)	81.6	(NA)	(NA)	66.1
36996 —	Apparatus wire and cord and flexible cord sets made in industries purchasing insulated wire (industry 3699) ----	55	(X)	171.0	53	(X)	130.0

Table 6a-2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3357- -- 33551 -- 33569 92 34965 -- 36996 --	**Nonferrous wire cloth and other woven wire products—Con.**						
33571 -- 33551 --	Aluminum and aluminum-base alloy wire and cable, including ACSR ---- 1,000 s tons	(NA)	202.9	486.4	(NA)	290.3	387.5
33571 --	Made in industry 3357 (nonferrous wiredrawing, etc.) and other industries ---- do	(NA)	98.1	284.9	(NA)	205.7	263.4
33551 --	Made in industry 3355 (aluminum rolling and drawing, n.e.c.) ---- do	(NA)	104.8	201.5	(NA)	84.6	124.2
33571 11 33551 11	Bare wire for electrical transmission ---- do	12	123.5	182.4	(NA)	93.9	130.1
33571 11	Made in industry 3357 (nonferrous wiredrawing, etc.) and other industries ---- do	8	77.3	109.0	16	53.7	78.3
33551 11	Made in industry 3355 (aluminum rolling and drawing, n.e.c.) ---- do	4	46.2	73.3	4	41.8	53.8
33571 51 33551 51	Bare wire for other than electrical transmission ---- do	15	37.6	103.8	(NA)	43.9	77.5
33571 51	Made in industry 3357 (nonferrous wiredrawing, etc.) and other industries ---- do	9	(D)	(D)	6	20.7	34.2
33551 51	Made in industry 3355 (aluminum rolling and drawing, n.e.c.) ---- do	6	(D)	(D)	10	23.2	43.3
33571 61 33551 61	Aluminum cable, steel reinforced (ACSR) (gross weight) ---- do	7	99.3	162.8	(NA)	(D)	(D)
33571 61	Made in industry 3357 (nonferrous wiredrawing, etc.) and other industries ---- do	5	(D)	(D)	9	(D)	(D)
33551 61	Made in industry 3355 (aluminum rolling and drawing, n.e.c.) ---- do	2	(D)	(D)	2	(D)	(D)
33571 65 33551 65	Other aluminum cable, bare ---- do	5	24.5	36.9	(NA)	(D)	(D)
33571 65	Made in industry 3357 (nonferrous wiredrawing, etc.) and other industries ---- do	4	(D)	(D)	4	(D)	(D)
33551 65	Made in industry 3355 (aluminum rolling and drawing, n.e.c.) ---- do	1	(D)	(D)	(NA)	(D)	(D)
33573 -- 33569 92	Other bare nonferrous metal wire ---- do	34	*546.5	282.6	(NA)	(NA)	311.9
33573 --	Made in nonferous wiredrawing (industry 3357) and other industries ---- do	15	*527.6	116.1	16	(NA)	117.9
33569 92	Made in rolling and drawing, n.e.c. (industry 3356) ---- do	19	*19.0	166.5	24	(NA)	194.0
33575 -- 34965 --	Nonferrous wire cloth and other woven nonferrous wire products ----	(NA)	(X)	120.7	(NA)	(NA)	160.6
33575 --	Made in industry 3357 (nonferrous wiredrawing, etc.) ----	(NA)	(X)	39.1	(NA)	)NA)	94.5
34965 --	Made in industry 3496 (miscellaneous fabricated wire products) and other industries ----	(NA)	(X)	81.6	(NA)	(NA)	66.1
33575 17 34965 17	Insect wire screening ---- mil sq ft	6	456.7	53.1	7	549.2	41.7
33575 17	Made in industry 3357 ---- do	2	(D)	(D)	4	287.5	19.8
34965 17	Made in industry 3496 and other industries ---- do	4	(D)	(D)	4	261.7	21.8
33575 57 34965 57	Paper machine wire cloth (fourdrinier and cylinder) ---- do	5	38.5	19.8	6	(S)	87.9
73575 53	Made in industry 3357 ---- do	1	(D)	(D)	3	(D)	(D)
74965 53	Made in industry 3496 and other industures ---- do	4	(D)	(D)	4	(D)	(D)
33575 65 34965 65	Industrial wire cloth, nonferrous ---- do	28	**13.7	47.5	19	**10.9	31.0
33575 65	Made in industry 3357 ---- do	3	(D)	(D)	(NA)	(D)	(D)
34965 65	Made in industry 3496 ---- do	25	(D)	(D)	(NA)	(D)	(D)
33575 00 34965 00	Nonferrous wire cloth and woven wire products, n.s.k. ----	(NA)	(X)	.2	(NA)	(X)	-
33575 00	Made in industry 3357 ----	(NA)	(X)	.2	(NA)	(X)	-
34965 00	Made in industry 3496 ----	(NA)	(X)	-	(NA)	(X)	-
33576 -- 36996 --	Apparatus wire and cord and flexible cord sets ----	(NA)	(X)	648.6	(NA)	(X)	577.8
33576 --	Made in wiredrawing and insulating plants (industry 3357) ----	55	(X)	477.6	45	(X)	447.8
36996 --	Made in industries purchasing insulated wire (industry 3699) ----	55	(X)	171.0	53	(X)	130.0

Note: In 1982 Census of Manufactures, data for establishments of small single-unit companies with up to 20 employees were estimated from administrative records data rather than data actually collected from respondents. Employment cutoff used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1982 and 1977 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

[1]Data reported by all producers, not just those with shipments of $100,000 or more.

[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[3]For 1977, product codes 33551 62, 33551 69, and 33571 61 were combined with 33571 65 to avoid disclosing data for individual companies.

Table 6a-3. Shipments of Insulated Wire and Cable: 1982 and 1977

[Quantity in thousand pounds; value in thousand dollars. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982					1977				
		Shipments, including interplant transfers			Value of shipments to other companies	Value of transfers to other plants of the same company	Shipments, including interplant transfers			Value of shipments to other companies	Value of transfers to other plants of the same company
		Quantity		Value			Quantity		Value		
		Copper content	Aluminum content				Copper content	Aluminum content			
	Insulated wire, except magnet wire	**2 021 254**	**257 294**	**6 429 273**	**6 142 897**	**286 376**	**2 105 571**	**319 737**	**4 735 228**	**4 328 803**	**406 425**
3357A —	Electronic wire and cable[1]	146 488	(D)	1 303 541	1 285 822	17 719	99 596	(D)	474 073	466 741	7 332
	Coaxial cable, armored or unarmored:										
3357A 10	Rigid	14 506	(NA)	374 081	(D)	(D)	11 419	(NA)	60 138	(D)	(D)
3357A 12	Semiflexible										
	Flexible:										
3357A 13	135 C temperature rating or more	2 331	(NA)	21 042	(D)	(D)	1 208	(NA)	9 712	(D)	(D)
3357A 14	Less than 135 C temperature rating	19 367	(NA)	188 298	(D)	(D)	10 692	(NA)	61 233	(D)	(D)
3357A 22	Antenna lead-in wire	8 467	(NA)	25 155	(D)	(D)	13 549	(NA)	27 262	(D)	(D)
	Hook-up wire (single conductor, shielded and nonshielded):										
3357A 23	135 C temperature rating or more	9 413	(NA)	140 132	(D)	(D)	7 740	(NA)	84 361	(D)	(D)
3357A 25	Less than 135 C temperature rating	20 400	(NA)	82 504	(D)	(D)	17 750	(NA)	48 417	47 398	1 019
	Multiconductor electronic wire and cable (shielded and nonshielded):										
3357A 18	Flat and ribbon cable	4 458	(NA)	54 822	(D)	(D)	3 073	(NA)	23 557	(D)	(D)
3357A 19	Other multiconductor electronic wire and cable	67 546	(NA)	417 507	(D)	(D)	34 165	(NA)	159 393	153 795	5 598
3357B —	Telephone and telegraph wire and cable[1]	604 861	(NA)	1 814 368	1 744 122	70 246	736 014	(D)	1 619 805	1 517 431	102 374
3357B 41	Jumper and distributing frame wire, including bank, hand-formed, push-back	13 829	(NA)	52 917	(D)	(D)	12 353	(NA)	31 554	(D)	(D)
3357B 43	Station wire and cable	18 363	(NA)	79 933	(D)	(D)	18 602	(NA)	58 449	(D)	(D)
3357B 72	Switchboard wire and cable (except telephone cord sets and cordage)	(D)	(NA)	(D)	(D)	(D)	(D)	(NA)	(D)	(D)	(D)
3357B 73	Telephone cord sets and cordage	(D)	(NA)	(D)	(D)	(D)	(D)	(NA)	(D)	(D)	(D)
3357B 52	Inside wiring cable	30 398	(NA)	96 048	(D)	(D)	33 727	(NA)	65 278	(D)	(D)
3357B 55	Drop and bridle and duct wire and cable	3 983	(NA)	38 785	(D)	(D)	5 513	(NA)	35 300	(D)	(D)
3357B 68	Rural and urban distribution wire and cable	12 398	(NA)	41 856	(D)	(D)	21 539	(NA)	57 750	(D)	(D)
	Paper and pulp insulated:										
3357B 76	Lead covered telephone and telegraph cable (excluding coaxial)	119 631	(NA)	280 498	(D)	(D)	(D)	(NA)	(D)	(D)	(D)
3357B 77	Polyethylene covered telephone and telegraph cable (excluding coaxial)						219 015	(NA)	366 122	(D)	(D)
	Thermoplastic insulated:										
3357B 81	Lead covered telephone and telegraph cable (excluding coaxial)	–	(NA)	–	–	–	(D)	(NA)	(D)	(D)	(D)
3357B 82	Polyethylene covered telephone and telegraph cable (excluding coaxial)	363 088	(NA)	978 322	(D)	(D)	360 143	(NA)	736 479	(D)	(D)
33578 —	Power wire and cable[1]	241 052	90 942	853 899	808 576	45 323	232 651	150 367	695 424	629 435	65 989
33578 01	Mineral insulated cable (including asbestos and varnished cloth)	677	(NA)	8 164	(D)	(D)	1 797	(D)	5 765	[3]	[3]
	Paper insulated cable (all voltages):										
33578 04	Solid	19 795	(D)	56 088	56 088	–	8 940	–	19 444	[3]	[3]
33578 06	Pipe and other						3 744	(D)	14 923	14 923	–
	Plastics and rubber insulated:										
	Less than 601 volts	112 593	61 311	373 567	360 066	13 501	105 047	98 782	309 772	[3]303 386	[3]31 595
33578 08	Portable welding cable	20 570	(D)	39 921	(D)	(D)	25 854	(D)	37 305	(D)	(D)
	Portable molded and rubber sheathed:										
33578 10	Cord	(D)	(NA)	(D)	(D)	(D)	5 874	–	12 727	(D)	(D)
33578 11	Cable (mine trailing cable)	24 401	(NA)	83 218	(D)	(D)	16 701	(D)	40 871	(D)	(D)
33578 12	Portable nonmolded cable										
33578 17	Underground distribution cable (UD, URD)	6 805	54 581	91 952	(D)	(D)	17 056	86 137	127 723	(D)	(D)
33578 19	Thermoplastic insulated cable	28 197	(D)	71 528	(D)	(D)					
	Thermoset insulated:										
33578 20	Armored, rubber and cross-linked	8 237	1 185	23 876	23 876	–	8 313	915	22 649	(D)	(D)
33578 21	Unarmored, rubber	14 499	(D)	35 328	(D)	(D)	14 397	(D)	26 545	(D)	(D)
33578 22	Unarmored, cross-linked	9 523	(D)	26 811	(D)	(D)	16 852	(D)	41 952	(D)	(D)
	601 volts and higher	107 987	29 321	416 080	385 393	30 687	113 123	50 162	345 520	311 126	34 394
33578 32	Portable molded rubber sheathed cable (mine shovel cable)	4 774	(D)	20 416	(D)	(D)	7 856	(D)	22 989	(D)	(D)
33578 35	Portable nonmolded cable	30 124	22 215	158 266	(D)	(D)	(D)	–	(D)	(D)	(D)
33578 37	Underground distribution cable (UD, URD)						19 106	19 423	75 334	(D)	(D)
33578 39	Thermoplastic insulated cable	1 462	329	8 364	(D)	(D)	7 563	6 188	21 067	(D)	(D)
	Thermoset insulated cable:										
	601 volts to 15 kv:										
33578 41	Armored, rubber, and cross-linked	16 962	(D)	68 783	(D)	(D)	10 681	(D)	47 654	(D)	(D)
33578 42	Unarmored, rubber	25 324	(D)	80 603	(D)	(D)	22 535	1 578	62 884	(D)	(D)
33578 43	Unarmored, cross-linked	22 176	2 107	55 964	54 359	1 605	33 448	12 093	79 238	(D)	(D)
	More than 15 kv:										
33578 46	Rubber	7 165	1 644	23 684	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33578 47	Cross-linked						9 873	5 322	28 740	(D)	(D)
3357C —	Control and signal wire and cable total[1]	47 334	[2]	247 507	246 929	578	36 154	[4]	125 167	119 986	5 181
3357C 11	Signal wire and cable	8 343	(D)	59 696	(D)	(D)	7 374	–	35 008	(D)	(D)
	Control wire and cable (excluding elevator cable):										
3357C 13	Thermoset insulated (including rubber and cross-linked polyethylene)	23 811	(D)	130 809	(D)	(D)	14 279	–	52 446	(D)	(D)
3357C 14	Thermoplastic insulated	15 180	(D)	57 002	57 002	–	14 501	[4]	37 713	(D)	(D)
3357D —	Building wire and cable[1]	700 979	56 914	1 084 480	1 059 772	24 708	658 555	[4]82 829	875 429	735 210	140 219
	Building wire and cable having underwriters' labels (except varnished cambric insulated and service cable):										
	Thermoset insulated:										
3357D 36	Rubber (R, RH, RHH, RHW, etc.)	13 289	(D)	21 246	(D)	(D)	12 374	(D)	18 274	(D)	(D)
3357D 37	Cross-linked polyethylene (XHHW)	36 503	6 674	57 822	54 132	3 690	26 028	13 414	40 990	37 945	3 045
3357D 38	Cross-linked polyethylene (USE)	13 406	11 461	35 177	(D)	(D)	13 842	12 337	31 757	(D)	(D)
	Thermoplastic insulated:										
3357D 40	Flame-retardant nylon (THHN, THWN)	222 639	(D)	312 276	(D)	(D)	96 794	(D)	127 645	(D)	(D)
3357D 41	Moisture resistant (TW)	11 959	–	16 075	16 075	–	39 891	–	42 907	(D)	(D)
3357D 48	Moisture and heat resistant (THW)	164 507	21 037	218 890	205 759	13 131	167 631	29 358	199 271	(D)	(D)
3357D 51	Service entrance cable (SER, SEU, ASE)	7 834	17 554	41 849	39 058	2 791	8 815	23 231	50 688	44 652	6 036
	Nonmetallic branch-circuit and underground feeder:										
3357D 54	Type NM	196 962	(D)	279 377	(D)	(D)	258 552	(D)	305 054	(D)	(D)
3357D 55	Type UF and NMC (corrosion resistant)	17 653	(D)	30 869	(D)	(D)	23 937	(D)	33 829	(D)	(D)

See footnotes at end of table.

Table 6a-3. **Shipments of Insulated Wire and Cable: 1982 and 1977**—Con.

[Quantity in thousand pounds; value in thousand dollars. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982					1977				
		Shipments, including interplant transfers			Value of shipments to other companies	Value of transfers to other plants of the same company	Shipments, including interplant transfers			Value of shipments to other companies	Value of transfers to other plants of the same company
		Quantity		Value			Quantity		Value		
		Copper content	Aluminum content				Copper content	Aluminum content			
3357D —	Building wire and cable—Con.										
3357D 57	Metallic armored cable (all AC types)	14 931	(D)	59 377	(D)	(D)	7 874	(D)	21 437	(D)	(D)
3357D 58	Other building wire and cable	1 296	–	2 522	(D)	(D)	2 817	(D)	3 577	(D)	(D)
3357E —	Other insulated wire and cable[1]	111 396	57 505	539 911	474 963	64 948	133 792	82 158	421 434	352 172	69 262
	Automotive:										
3357E 72	Bulk automotive primary wire	26 586	(NA)	50 836	(D)	(D)	50 694	–	69 690	(D)	(D)
3357E 74	Bulk battery cable	12 682	(NA)	70 083	(D)	(D)	7 083	–	10 001	(D)	(D)
3357E 76	Bulk ignition wire						3 702	–	23 097	(D)	(D)
3357E 78	Other automotive wire and cable	20 068	(NA)	54 487	(D)	(D)	28 754	(D)	88 847	(D)	(D)
3357E 15	Elevator hatch and traveling cable	3 935	(NA)	17 009	(D)	(D)	2 074	–	5 115	(D)	(D)
	Weather proof and service drop cable:										
3357E 34	Thermoset insulated	(D)	(D)	34 436	(D)	(D)	2 127	34 254	38 036	(D)	(D)
3357E 35	Thermoplastic insulated	(D)	(D)	54 899	(D)	(D)	5 597	47 721	57 803	(D)	(D)
	Airframe, shipboard, and ground support cable (excluding coaxial cable and ignition cable):										
3357E 79	Airframe and missile (including ground support cable)	2 622	(NA)	20 412	20 412	–	2 182	(D)	15 668	(D)	(D)
3357E 89	Shipboard cable	12 575	(NA)	77 848	(D)	(D)	8 155	–	29 426	(D)	(D)
3357E 98	Other insulated or covered wire and cable, n.e.c.	26 750	(D)	159 901	153 353	(D)	23 424	(D)	83 751	74 941	8 810
33576 —	Apparatus wire and cordage[1 2]	169 144	(NA)	585 567	522 713	62 854	208 809	(D)	525 628	440 298	85 330
	Flexible cordage:										
33576 13	Thermoset insulated	20 018	(NA)	78 932	(D)	(D)	23 337	(NA)	59 389	(D)	(D)
33576 15	Thermoplastic insulated	14 445	(NA)	51 934	(D)	(D)	47 630	(NA)	126 952	(D)	(D)
33576 17	Thermoplastic elastomers	1 337	(NA)	3 189	3 189	–	(NA)	(NA)	(NA)	(NA)	(NA)
33576 21	Appliance fixture wire	21 370	(NA)	63 934	58 648	5 286	18 554	(NA)	48 507	37 618	10 889
	Appliance wiring material 14 gauge and larger (including motor lead and transformer lead wire):										
33576 23	Thermoset insulated	8 168	(NA)	29 733	(D)	(D)	13 945	(NA)	37 628	26 984	10 644
33576 24	Thermoplastic insulated	43 563	(NA)	87 765	74 557	13 208	40 781	(NA)	73 217	59 723	13 494
33576 28	Submersible pump cable	2 683	(NA)	7 734	7 734	–	3 138	(NA)	6 318	(D)	(D)
33576 30	Power supply and extension cords	21 954	(NA)	104 202	(D)	(D)	26 067	(NA)	71 683	(D)	(D)
33576 31	Appliance harness	11 536	(NA)	59 682	(D)	(D)	12 624	(NA)	38 196	(D)	(D)
33576 29	Other apparatus wire and cordage (including machine tool wire)	7 581	(NA)	343 382	31 831	(D)	22 733	(NA)	63 738	48 994	14 744
33577 —	**Magnet wire**	**434 701**	**51 583**	739 219	**(NA)**	**(NA)**	**521 081**	**72 211**	748 065	**(NA)**	**(NA)**
33577 03	Insulated magnet sheet, strip, and foil	(2)	(2)	(2)	(NA)	(NA)	(2)	(2)	(2)	(NA)	(NA)
33577 07	Film coated, 45 AWG and finer (all classes)	(3)	(3)	(3)	(NA)	(NA)	127	–	2 000	(NA)	(NA)
	Film coated, 44 to 7 AWG and larger	397 304	46 449	670 737	(NA)	(NA)	470 114	68 631	680 958	(NA)	(NA)
	Class 105	55 639	10 956	104 438	(NA)	(NA)	74 498	21 730	138 045	(NA)	(NA)
33577 11	7 AWG and larger round (also all square and rectangle)	8 676	915	16 030	(NA)	(NA)	3 996	1 347	6 512	(NA)	(NA)
33577 13	8 to 21 AWG inclusive	30 884	4 955	49 682	(NA)	(NA)	39 074	(NA)	(NA)	(NA)	(NA)
33577 15	22 to 32 AWG inclusive	9 921	5 086	38 726	(NA)	(NA)	13 809	(NA)	(NA)	(NA)	(NA)
33577 17	33 to 44 AWG inclusive	6 158					17 538	(NA)	(NA)	(NA)	(NA)
	Class 130	75 056	5 362	136 855	(NA)	(NA)	83 976	5 327	117 971	(NA)	(NA)
33577 21	7 AWG and larger round (also all square and rectangle)	62 534	5 362	103 561	(NA)	(NA)	72 588	5 327	94 417	(NA)	(NA)
33577 23	8 to 21 AWG inclusive										
33577 25	22 to 32 AWG inclusive										
33577 28	33 to 44 AWG inclusive	12 522	–	33 294	(NA)	(NA)	11 388	–	23 554	(NA)	(NA)
	Class 155	44 925	7 423	83 431	(NA)	(NA)	95 125	11 280	127 433	(NA)	(NA)
33577 32	7 AWG and larger round (also all square and rectangle)	25 537	6 643	47 929	(NA)	(NA)	55 117	9 935	73 723	(NA)	(NA)
33577 34	8 to 21 AWG inclusive										
33577 37	22 to 32 AWG inclusive	17 937	669	30 845	(NA)	(NA)	37 643	1 345	47 712	(NA)	(NA)
33577 38	33 to 44 AWG inclusive	1 451	111	4 657	(NA)	(NA)	2 365	–	5 999	(NA)	(NA)
	Class 180	68 671	10 575	114 295	(NA)	(NA)	74 628	14 693	108 735	(NA)	(NA)
33577 41	7 AWG and larger round (also all square and rectangle)	68 493	10 575	113 798	(NA)	(NA)	73 620	14 693	105 782	(NA)	(NA)
33577 43	8 to 21 AWG inclusive										
33577 45	22 to 32 AWG inclusive										
33577 47	33 to 44 AWG inclusive	178	–	497	(NA)	(NA)	1 008	–	2 953	(NA)	(NA)
	Class 200	145 121	6 151	204 345	(NA)	(NA)	132 369	10 439	163 764	(NA)	(NA)
33577 52	7 AWG and larger round (also all square and rectangle)	26 483									
33577 54	8 to 21 AWG inclusive	89 653	6 151	204 345	(NA)	(NA)	132 369	10 439	163 764	(NA)	(NA)
33577 56	22 to 32 AWG inclusive	27 742									
33577 58	33 to 44 AWG inclusive	1 243									
	Class 220	7 892	5 982	27 373	(NA)	(NA)	9 518	5 162	25 010	(NA)	(NA9
33577 61	7 AWG and larger round (also all square and rectangle)	3 410	5 565	22 513	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
33577 63	8 to 21 AWG inclusive	3 423									
33577 65	22 to 32 AWG inclusive										
33577 67	33 to 44 AWG inclusive	1 059	417	4 860	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
33577 79	Miscellaneous film coated, n.e.c.										
	Nonfilm coated (fibrous and tape)	[2]37 397	[2]5 134	[2]68 482	(NA)	(NA)	[2]50 840	[2]3 580	[2]65 107	(NA)	(NA)
	Class 130 or less:										
33577 81	Fibrous	[3]15 504	[3]3 031	[3]28 836	(NA)	(NA)	[2]25 009	[2]717	[2]25 474	(NA)	(NA)
33577 83	Tape										
33577 89	Miscellaneous nonfilm coated, n.e.c.										
	Class 155 or more:										
33577 85	Fibrous	17 584	2 103	39 646	(NA)	(NA)	24 702	2 863	39 633	(NA)	(NA)
33577 87	Tape	4 309					1 129				

[1]Aluminum content data are available for individual products (seven-digit) only for those products in product classes 33578, power wire and cable; 3357C, control and signal wire and cable; 3357D, building wire and cable; and 3357E, other insulated wire and cable. For other product classes aluminum content figures were collected only at product class (five-digit) level.

[2]Data are limited to the following: (a) all known establishments which insulate wire and cable, and (b) 50 largest producers of appliance wire, code, and flexible cord sets from purchased insulated wire (as measured by dollar value of shipments in 1963).

[3]Included with plastics and rubber insulated "Less than 601 volts" to avoid disclosing data of individual companies.

[4]Included with "building wire and cable" to avoid disclosing data of individual companies.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1982 and 1977

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1982. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Product class and geographic area	1982 value of product shipments	1977 value of product shipments
33511, COPPER AND COPPER-BASE ALLOY WIRE		
United States	**346.4**	**170.7**
California	5.2	(AA)
Connecticut	39.0	58.9
New Jersey	82.5	60.5
Pennsylvania	5.8	5.1
33513, COPPER AND COPPER-BASE ALLOY ROD, BAR, AND SHAPES		
United States	**921.0**	**1 491.3**
Connecticut	94.1	117.9
Indiana	100.8	153.4
Michigan	97.9	137.6
Pennsylvania	68.8	67.6
33514, COPPER AND COPPER-BASE ALLOY SHEET, STRIP, AND PLATE		
United States	**800.8**	**937.3**
Connecticut	112.4	217.5
Pennsylvania	147.0	81.6
33515, COPPER AND COPPER-BASE ALLOY PIPE AND TUBE		
United States	**845.0**	**895.5**
Connecticut	38.1	38.4
Michigan	32.6	34.5
New Jersey	4.0	(BB)
Ohio	28.4	37.2
Pennsylvania	134.9	143.0
33531, ALUMINUM PLATE		
United States	**378.6**	**247.3**
California	27.3	19.7
33533, PLAIN ALUMINUM FOIL		
United States	**545.1**	**476.6**
Kentucky	89.4	(FF)
Tennessee	88.6	69.3
33541, EXTRUDED ALUMINUM ROD, BAR, AND OTHER SHAPES		
United States	**2 100.4**	**1 541.9**
Arizona	37.7	30.0
California	264.7	250.4
Florida	65.5	(FF)
Georgia	163.3	127.5
Illinois	101.9	91.7
Indiana	175.6	137.7
Michigan	136.8	111.8
Mississippi	66.2	39.7
New Jersey	103.4	63.5
New York	130.8	48.5
Ohio	205.1	101.8
Pennsylvania	89.6	131.9
Texas	103.6	61.7
33542, ALUMINUM EXTRUDED AND DRAWN TUBE		
United States	**430.1**	**333.0**
California	58.5	19.1
Illinois	3.2	9.8
Indiana	69.9	(GG)
Michigan	35.7	29.2
Ohio	14.2	3.6
Pennsylvania	24.4	23.7
Virginia	27.2	(EE)
33552, ROLLED ALUMINUM ROD, BAR, AND STRUCTURAL SHAPES		
United States	**285.5**	**530.0**
Pennsylvania	6.9	(NA)
33561, NICKEL AND NICKEL-BASE ALLOY MILL SHAPES		
United States	**637.3**	**873.2**
Pennsylvania	9.3	(FF)
33562, TITANIUM MILL SHAPES		
United States	**609.2**	**250.7**
Pennsylvania	27.8	11.7
33563, PRECIOUS METAL MILL SHAPES		
United States	**1 261.6**	**751.7**
California	59.1	33.7
New York	185.5	241.6
33569, ALL OTHER NONFERROUS METAL MILL SHAPES		
United States	**757.2**	**662.1**
Illinois	37.5	102.7
Indiana	9.3	(EE)
New Jersey	58.6	79.7
New York	12.1	75.8
Ohio	60.0	36.4
Pennsylvania	147.9	109.3
Texas	66.2	(EE)
33572, COPPER AND COPPER-BASE ALLOY WIRE		
United States	**402.3**	**496.8**
Connecticut	38.2	(FF)
Illinois	19.4	(FF)
Michigan	5.5	10.0
New York	165.5	96.2
33576, APPARATUS WIRE AND CORD AND FLEXIBLE CORD SETS, PRODUCED IN WIREDRAWING PLANTS (ALSO SEE CODE 36996)		
United States	**477.6**	**447.8**
California	38.8	32.9
Illinois	27.7	22.3
Indiana	50.3	26.4
Massachusetts	46.5	53.0
New Jersey	12.5	(AA)
New York	22.9	12.6
Ohio	19.4	13.3
Pennsylvania	30.1	40.9
Rhode Island	129.2	148.2
33577, MAGNET WIRE		
United States	**747.0**	**754.4**
Connecticut	23.3	23.7
Illinois	71.6	83.3
Indiana	321.0	330.4

See footnotes at end of table.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1982 and 1977—Con.

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1982. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Product class and geographic area	1982 value of product shipments	1977 value of product shipments
33578, POWER WIRE AND CABLE		
United States	854.5	705.9
California	50.1	64.9
Connecticut	74.3	42.6
Illinois	39.2	(FF)
Massachusetts	21.9	22.3
New York	65.4	(GG)
Ohio	8.2	(BB)
Pennsylvania	30.9	33.0
Rhode Island	115.2	59.5
33579, FIBER OPTIC CABLE		
United States	88.6	(NA)
Connecticut	5.5	(NA)
3357A, ELECTONIC WIRE AND CABLE		
United States	1 304.4	478.9
Arizona	90.0	16.8
California	73.6	34.2
Connecticut	127.5	47.3
Illinois	33.8	24.2
Massachusetts	161.2	76.1
New Jersey	96.4	19.3
New York	45.2	41.4
Pennsylvania	43.6	18.9
Rhode Island	25.5	(EE)
3357B, TELEPHONE AND TELEGRAPH WIRE AND CABLE		
United States	1 815.2	1 600.2
Connecticut	21.0	5.8
New Jersey	29.7	(EE)
New York	7.9	18.3
North Carolina	86.3	75.7
3357C, CONTROL AND SIGNAL WIRE AND CABLE		
United States	248.8	128.3
California	10.9	10.2
Connecticut	65.8	40.8
Illinois	10.0	(CC)
Massachusetts	19.6	17.5
New York	23.4	10.8
Pennsylvania	26.8	7.3
Rhode Island	15.1	8.7
3357D, BUILDING WIRE AND CABLE		
United States	1 083.6	890.2
California	48.5	78.6
Connecticut	46.4	55.1
Georgia	218.5	(GG)
New Jersey	44.3	103.3
New York	191.7	194.2
Rhode Island	54.2	93.0
3357E, OTHER INSULATED WIRE AND CABLE, INCLUDING AUTOMOTIVE		
United States	550.6	431.7
California	10.5	18.3
Connecticut	23.8	14.8
Illinois	17.3	16.0
Indiana	22.8	(FF)
New Jersey	17.7	14.8
New York	24.8	6.1
Pennsylvania	52.4	33.2
Rhode Island	91.1	53.5
Virginia	22.1	(CC)
33991, METAL POWDERS, PASTE, AND FLAKES		
United States	799.1	702.2
California	16.6	16.1
Connecticut	21.3	12.6
Indiana	46.8	47.5
Michigan	36.5	55.0
New Jersey	111.6	140.7
New York	46.1	9.6
Ohio	30.3	53.2
Pennsylvania	164.9	124.7
Tennessee	23.2	23.1
Texas	61.9	35.9
33992, PRIMARY METAL PRODUCTS, N.E.C.		
United States	119.9	144.7
California	10.3	26.6
Michigan	8.2	10.3
New York	7.7	10.2
Ohio	12.5	20.6
Pennsylvania	17.2	10.7

Note: For 1977, the following value ranges (in million dollars) substitute for actual figures withheld to avoid disclosing data for individual companies: AA—less than $2.0 but not 0; BB—$2.0 to $4.9; CC—$5.0 to $9.9; EE—$10.0 to $19.9; FF—$20.0 to $49.9; GG—$50.0 or more.

Table 6c. Product Classes—Value Shipped by All Producers: 1982 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

1982 product code	Product class	1982	1981[1]	1980[1]	1979[1]	1978[1]	1977	1972	1967
3351-	**Copper rolling and drawing**	**2 941.6**	**4 008.1**	**4 020.9**	**4 383.2**	**3 524.2**	**3 536.1**	**2 825.0**	**2 216.8**
33511	Copper and copper-base alloy wire	346.4	248.3	280.4	260.4	215.4	170.7	157.9	95.6
33513	Copper and copper-base alloy rod, bar, and shapes	921.0	1 651.2	1 601.3	1 730.7	1 335.1	1 491.3	1 170.9	(NA)
33514	Copper and copper-base alloy sheet, strip, and plate	800.8	960.9	912.3	1 095.8	971.3	937.3	705.9	(NA)
33515	Copper and copper-base alloy pipe and tube	845.0	1 096.0	1 170.7	1 236.8	952.4	895.5	761.8	(NA)
33510	Rolled and drawn copper, n.s.k.	28.3	51.7	56.1	59.5	(S)	41.3	28.5	16.1
3353-	**Aluminum sheet, plate, and foil**	**6 519.7**	**7 761.7**	**7 265.9**	**7 254.9**	**6 691.1**	**5 358.8**	**2 238.0**	**(NA)**
33531	Aluminum plate	378.6	538.6	637.8	444.4	302.3	247.3	89.5	(NA)
33532	Aluminum sheet and strip	5 555.5	6 363.1	5 898.3	6 094.7	5 709.6	4 569.6	1 897.4	(NA)
33533	Plain aluminum foil	545.1	784.1	667.9	651.8	603.4	476.6	216.8	184.6
33534	Aluminum welded tube	29.8	64.6	57.8	61.3	69.1	61.6	34.3	(NA)
33530	Aluminum sheet, plate, and foil, n.s.k.	10.8	11.4	4.2	2.6	(S)	3.7	-	-
3354-	**Aluminum extruded products**	**2 550.5**	**2 785.6**	**2 726.1**	**2 744.8**	**2 326.5**	**1 928.2**	**1 026.4**	**(NA)**
33541	Extruded aluminum rod, bar, and other shapes	2 100.4	2 347.9	2 340.8	2 316.5	1 904.9	1 541.9	781.5	565.7
33542	Aluminum extruded and drawn tube	430.1	384.2	361.6	390.1	365.2	333.0	212.4	(NA)
33540	Aluminum extruded products, n.s.k.	20.1	53.6	23.6	38.2	(S)	53.3	32.5	44.8
3355-	**Aluminum rolling and drawing, n.e.c.**	**919.1**	**1 473.4**	**1 553.4**	**1 324.4**	**1 199.7**	**1 367.5**	**530.6**	**(NA)**
33551	Aluminum and aluminum-base alloy wire	201.5	148.0	136.0	169.4	129.1	124.1	61.0	75.0
33552	Rolled aluminum rod, bar, and structural shapes	285.5	637.3	675.8	565.2	547.2	530.0	303.0	257.6
33553	Aluminum ingot, except extrusion billet	413.1	675.6	728.6	579.8	516.6	709.5	166.6	86.2
33554	Aluminum extrusion billet								
33550	Aluminum rolling and drawing, n.e.c., n.s.k.	19.0	12.5	12.9	10.0	(S)	3.9	-	-
3356-	**Nonferrous rolling and drawing, n.e.c.**	**3 305.0**	**3 780.1**	**3 789.9**	**3 255.6**	**2 629.8**	**2 616.5**	**1 075.6**	**1 012.0**
33561	Nickel and nickel-base alloy mill shapes	637.3	832.8	1 065.7	803.4	710.5	873.2	270.4	(NA)
33562	Titanium mill shapes	609.2	1 052.6	838.8	540.6	326.7	250.7	111.1	(NA)
33563	Precious metal mill shapes	1 261.6	1 042.3	894.7	959.6	737.8	751.7	364.0	(NA)
33569	All other nonferrous metal mill shapes	757.2	783.9	924.2	865.6	805.0	662.1	285.1	(NA)
33560	Rolled and drawn nonferrous metals, n.e.c., n.s.k.	39.7	68.5	66.4	86.3	49.8	78.8	45.0	(NA)
3357-	**Nonferrous wiredrawing and insulating**	**8 188.1**	**9 012.4**	**9 193.5**	**8 577.1**	**7 064.7**	**6 460.3**	**4 223.9**	**3 389.6**
33571	Aluminum and aluminum-base alloy wire and cable, produced in nonferrous wiredrawing plants (also see code 33551)	284.9	367.7	383.9	332.5	300.1	263.4	153.0	176.9
33572	Copper and copper-base alloy wire	402.3	592.4	620.0	615.5	588.6	496.8	353.1	372.8
33573	Other bare nonferrous metal wire	116.1	95.6	109.2	145.2	(S)	117.9	59.5	40.5
33575	Nonferrous wire cloth and other woven wire products, produced in wiredrawing plants (also see code 34965)	39.1	47.0	53.7	51.7	58.8	94.5	33.9	36.2
33576	Apparatus wire and cord and flexible cord sets, produced in wiredrawing plants (also see code 36996)	477.6	562.0	551.2	525.6	478.4	447.8	262.9	184.2
33577	Magnet wire	747.0	921.3	899.5	944.7	828.3	754.4	548.8	449.6
33578	Power wire and cable	854.5	1 051.8	1 245.9	1 047.9	788.5	705.9	499.7	424.0
33579	Fiber optic cable	88.6	-	-	-	-	-	-	-
3357A	Electonic wire and cable	1 304.4	1 208.6	1 164.0	827.3	585.2	478.9	1 316.0	909.1
3357B	Telephone and telegraph wire and cable	1 815.2	2 129.6	2 076.6	2 097.9	1 662.2	1 600.2		
3357C	Control and signal wire and cable	248.8	238.4	205.9	173.8	132.1	128.3		
3357D	Building wire and cable	1 083.6	1 112.7	1 261.2	1 218.8	971.7	890.2	956.5	745.9
3357E	Other insulated wire and cable, including automotive	550.6	562.5	525.7	528.3	466.2	431.7		
33570	Nonferrous wiredrawing and insulating, n.s.k.	175.4	122.9	96.7	67.9	(S)	50.3	40.5	50.4
3398-	**Metal heat treating**	**1 105.9**	**(NA)**	**(NA)**	**(NA)**	**(NA)**	**(NA)**	-	-
33980	Metal heat treating	1 105.9	1 174.1	1 076.3	1 059.8	932.1	704.1	454.1	274.9
3399-	**Primary metal products, n.e.c.**	**959.0**	**1 540.5**	**1 577.3**	**1 511.4**	**1 229.6**	**967.5**	**416.5**	**(NA)**
33991	Metal powders, paste, and flakes	799.1	1 149.7	1 214.0	1 085.4	813.2	702.2	322.7	227.8
33992	Primary metal products, n.e.c.	119.9	287.4	280.2	329.8	235.6	144.7	93.8	43.1
33990	Primary metal products, n.e.c., n.s.k.	40.0	103.4	83.1	96.2	(S)	120.6	-	-

[1]Figures are estimates derived from a representative sample of manufacturing establishments canvassed in annual survey of manufactures and, therefore, may differ from results that would be obtained from a complete canvass of all manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures volumes for this period.

Table 7. Materials Consumed by Kind: 1982 and 1977

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982 Quantity[1]	1982 Delivered cost (million dollars)	1977 Quantity[1]	1977 Delivered cost (million dollars)
	INDUSTRY 3351, COPPER ROLLING AND DRAWING				
	Materials, parts, containers, and supplies	**(X)**	**2 078.4**	**(X)**	**2 822.5**
	Nonferrous metals and alloys (ingot, pig, shot, etc.):				
333404	Aluminum, unalloyed (1,000 s tons)	8.7	17.8	(D)	[3]
333405	Aluminum-base alloys (do.)				
	Copper, unalloyed:				
333123	Cathodes (do.)	192.8	247.8	347.2	462.0
333124	Wire bar (do.)	150.0	239.7	256.5	320.4
333126	Ingot and ingot bar (do.)			147.0	188.9

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 1982 and 1977—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material		1982 Quantity[1]	1982 Delivered cost (million dollars)	1977 Quantity[1]	1977 Delivered cost (million dollars)
	INDUSTRY 3351, COPPER ROLLING AND DRAWING—Con.					
	Nonferrous metals and alloys (ingot, pig, shot, etc.) —Con.					
	Copper, unalloyed —Con.					
333127	Other, including cakes, slabs, billets, etc.	1,000 s tons	117.1	186.3	236.3	319.1
	Copper-base alloy raw materials:					
333128	Ingot and ingot bar	do	14.6	23.1	35.2	44.7
333129	Other, including billets, shot, waffle, hardeners, etc.	do	77.9	87.9	98.5	124.0
333232	Lead and lead-base alloys	do	3.6	2.0	3.9	2.2
333973	Magnesium and magnesium-base alloys	do	(D)	(D)	.2	.3
333971	Nickel and nickel-base alloys	do	2.3	13.7	4.8	21.9
333348	Zinc and zinc-base alloys	do	49.1	41.7	104.3	69.8
333981	Molybdenum and molybdenum-base alloys	mil lb	–	–	–	–
333983	Tin and tin-base alloys	do	**1.1	7.6	2.8	13.2
333985	Vanadium and vanadium-base alloys	do	(D)	(D)	–	–
333987	Tungsten and tungsten-base alloys	do	–	–	–	–
333909	Other nonferrous metals and alloys	1,000 s tons	(D)	(D)	2.3	11.2
	Nonferrous metal scrap, excluding home scrap:					
	Aluminum and aluminum-base alloys:					
190021	From other establishments of the same company	do	(D)	(D)	–	–
190022	From other sources, excluding home scrap	do	(D)	(D)	(D)	(3)
190024	Copper and copper-base alloys	do	452.1	619.3	565.9	610.4
190025	Lead and lead-base alloys, including antimonial lead scrap	do	(D)	(D)	(D)	(3)
190026	Zinc and zinc-base alloys, including drosses and skimming	do	(D)	(D)	4.1	2.6
	Aluminum and aluminum-base alloy mill shapes (rod, bar, sheet, etc.):					
335301	Sheet, plate, and foil	mil lb	(D)	(D)	(D)	(3)
335405	Extruded shapes	do	(D)	(D)	(D)	(3)
335008	All other	do	(D)	(D)	–	–
335100	Brass mill shapes (rod, bar, sheet, etc.)	1,000 s tons	49.9	80.6	91.8	125.0
970099	All other materials and components, parts, containers, and supplies		(X)	198.2	(X)	3466.0
971000	Materials, parts, containers, and supplies, n.s.k.[2]		(X)	35.4	(X)	40.8
	INDUSTRY 3353, ALUMINUM SHEET, PLATE, AND FOIL					
	Materials, parts, containers, and supplies		**(X)**	**5 439.8**	**(X)**	**4 696.2**
	Nonferrous metals and alloys (ingot, pig, shot, etc.):					
333404	Aluminum, unalloyed	1,000 s tons	1 360.7	1 861.8	1 568.8	1 478.0
333405	Aluminum-base alloys	do	967.8	1 421.1	1 594.8	1 436.4
	Copper, unalloyed:					
333126	Ingot and ingot bar	do	(4)	(4)	(5)	(5)
333127	Other, including cakes, slabs, billets, etc.	do	(4)	(4)	(5)	(5)
	Copper-base alloy raw materials:					
333128	Ingot and ingot bar	do	(4)	(4)	(5)	(5)
333129	Other, including billets, shot, waffle, hardeners, etc.	do	(4)	(4)	510.9	513.3
333973	Magnesium and magnesium-base alloys	do	27.0	75.5	36.3	69.7
333348	Zinc and zinc-base alloys	1,000 s tons	2.6	2.4	6.4	5.7
333983	Tin and tin-base alloys	mil lb	–	–	(D)	(D)
333909	Other nonferrous metals and alloys	1,000 s tons	14.2	28.0	24.5	30.3
	Nonferrous metal scrap, excluding home scrap:					
	Aluminum and aluminum-base alloy:					
190021	From other establishments of the same company	do	327.4	363.8	174.5	147.5
190022	From other sources, excluding home scrap	do	822.9	811.1	196.9	164.6
190024	Copper and copper-base alloy	do	46.1	411.5	(D)	(D)
	Aluminum and aluminum-base alloy mill shapes (rod, bar, sheets, etc.):					
335301	Sheets, plates, and foil	mil lb	591.0	522.4	1 101.7	655.1
335405	Extruded shapes	do			–	–
335008	All other	do			(D)	(D)
970099	All other materials and components, parts, containers, and supplies		(X)	331.6	(X)	656.4
971000	Materials, parts, containers, and supplies, n.s.k.[2]		(X)	10.6	(X)	31.3
	INDUSTRY 3354, ALUMINUM EXTRUDED PRODUCTS					
	Materials, parts, containers, and supplies		**(X)**	**1 606.1**	**(X)**	**1 286.4**
	Nonferrous metals and alloys (ingot, pig, shot, etc.):					
333404	Aluminum, unalloyed	1,000 s tons	290.5	343.1	328.2	317.2
333405	Aluminum-base alloys	do	629.3	705.6	557.5	565.4
	Copper:					
333123	Cathodes	do	(6)	(6)	(D)	(D)
333127	Other, including cakes, slabs, billets, etc.	do	(Z)	(Z)	(D)	(D)
	Copper-base alloy raw materials:					
333128	Ingot and ingot bar	do	(6)	(6)	–	–
333129	Other, including billets, shot, waffle, hardeners, etc.	do	65.9	69.6	(D)	(D)
333232	Lead and lead-base alloys	do	(D)	(D)	.1	.2
333973	Magnesium and magnesium-base alloys	do	3.3	10.0	3.6	6.8
333971	Nickel and nickel-base alloys	do	(D)	(D)	(Z)	(Z)
333348	Zinc and zinc-base alloys	do	1.9	1.8	(D)	1.4
333983	Tin and tin-base alloys	mil lb	(D)	(D)	(Z)	(D)
333985	Vanadium and vanadium-base alloys	do	(D)	(D)	–	–
333987	Tungsten and tungsten-base alloys	do	(D)	(D)	–	–
333909	Other nonferrous metals and alloys	1,000 s tons	3.8	35.7	(D)	(D)

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 1982 and 1977—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982 Quantity[1]	1982 Delivered cost (million dollars)	1977 Quantity[1]	1977 Delivered cost (million dollars)
	INDUSTRY 3354, ALUMINUM EXTRUDED PRODUCTS—Con.				
	Nonferrous metal scrap, excluding home scrap:				
	Aluminum and aluminum-base alloys:				
190021	From other establishments of the same company ------ 1,000 s tons	86.8	108.4	42.3	32.2
190022	From other sources, excluding home scrap ------ do	117.7	102.8	77.9	72.0
190024	Copper and copper-base alloys ------ do			(D)	(D)
190026	Zinc and zinc-base alloys, including drosses and skimming ------ do	21.5	(Z)	-	-
	Aluminum and aluminum-base alloy mill shapes (rod, bar, sheets, etc.):				
335301	Sheets, plates, and foil ------ mil lb	(7)	(7)	(D)	(D)
335405	Extruded shapes ------ do	9 174.3	43.6	52.0	30.7
335008	All other ------ do	712.3	714.9	(D)	(D)
970099	All other materials and components, parts, containers, and supplies ------	(X)	163.9	(X)	177.4
971000	Materials, parts, containers, and supplies, n.s.k.[2] ------	(X)	77.8	(X)	45.9
	INDUSTRY 3355, ALUMINUM ROLLING AND DRAWING, N.E.C.				
	Materials, parts, containers, and supplies ------	**(X)**	**512.9**	**(X)**	**716.7**
	Nonferrous metals and alloys (ingot, pig, shot, etc.):				
333404	Aluminum, unalloyed ------ 1,000 s tons	140.8	196.1	481.0	442.2
333405	Aluminum-base alloys ------ do	87.5	131.2	63.0	64.9
	Nonferrous metal scrap, excluding home scrap:				
	Aluminum and aluminum-base alloy:				
190021	From other establishments of same company ------ do	13.8	17.3	(8)	(8)
190022	From other sources, excluding home scrap ------ do			846.8	825.9
	Aluminum and aluminum-base alloy mill shapes (rods, bars, sheets, etc.):				
335301	Sheets, plates, and foil ------ mil lb	-	-	(9)	(9)
335405	Extruded shapes ------ do	-	-	(9)	(9)
335008	All other ------ do	.2	.7	917.3	99.7
970099	All other materials and components, parts, containers, and supplies ------	(X)	122.8	(X)	144.8
971000	Materials, parts, containers, and supplies, n.s.k.[2] ------	(X)	44.8	(X)	29.2
	INDUSTRY 3356, NONFERROUS ROLLING AND DRAWING, N.E.C.				
	Materials, parts, containers, and supplies ------	**(X)**	**2 160.4**	**(NA)**	**1 959.3**
	Nonferrous metals and alloys (ingot, pig, shot, etc.):				
333404	Aluminum, unalloyed ------ 1,000 s tons	3.7	8.0	1.1	1.2
333405	Aluminum-base alloys ------ do			.6	.7
	Copper, unalloyed:				
333123	Cathodes ------ do			-	-
333124	Wire bar ------ do	**.4	.7	.1	.1
333126	Ingot and ingot bar ------ do			(D)	(D)
333127	Other, including cakes, slabs, billets, etc. ------ do	4.7	13.0	.4	.7
	Copper-base alloy raw materials:				
333128	Ingot and ingot bar ------ do	(10)	(10)	(D)	(D)
333129	Other, including billets, shot, waffle, hardeners, etc. ------ do	(10)	(10)	.3	.5
333232	Lead and lead-base alloys ------ do	44.2	26.1	29.9	19.1
333973	Magnesium and magnesium-base alloys ------ do	16.0	45.4	9.9	17.5
333971	Nickel and nickel-base alloys ------ do	75.4	328.9	68.6	308.3
333348	Zinc and zinc-base alloys ------ do	(10)	(10)	64.6	40.8
333981	Molybdenum and molybdenum-base alloys ------ mil lb	.9	9.9	2.3	11.0
333983	Tin and tin-base alloys ------ do	1.4	8.6	16.7	71.8
333985	Vanadium and vanadium-base alloys ------ do	3.0	8.1	(D)	(D)
333987	Tungsten and tungsten-base alloys ------ do	1027.4	1028.4	(D)	(D)
333909	Other nonferrous metals and alloys ------ 1,000 s tons	78.6	1 345.5	(NA)	723.9
	Nonferrous metal scrap, excluding home scrap:				
	Aluminum and aluminum-base alloy:				
190021	From other establishments of the same company ------ do	(D)	(11)	-	-
190022	From other sources, excluding home scrap ------ do	-	-	(D)	(D)
190024	Copper and copper-base alloy ------ do	-	-	(D)	(D)
190025	Lead and lead-base alloys, including antimonial lead scrap ------ do	(D)	(11)	(D)	(D)
190026	Zinc and zinc-base alloys, including drosses and skimming ------ do	-	-	8.9	3.9
	Aluminum and aluminum-base alloy mill shapes (rod, bar, sheet, etc.):				
335301	Sheet, plate, and foil ------ mil lb	-	-	(D)	(D)
335405	Extruded shapes ------ do	(Z)	-	(D)	(D)
335008	All other ------ do	-	-	-	-
335100	Brass mill shapes (rod, bar, sheet, etc.) ------ 1,000 s tons	(D)	(11)	(D)	(D)
970099	All other materials and components, parts, containers, and supplies ------	(X)	11327.6	(X)	564.0
971000	Materials, parts, containers, and supplies, n.s.k.[2] ------	(X)	10.2	(X)	136.9

See footnotes at end of table.

Table 7. **Materials Consumed by Kind: 1982 and 1977**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982 Quantity[1]	1982 Delivered cost (million dollars)	1977 Quantity[1]	1977 Delivered cost (million dollars)
	INDUSTRY 3357, NONFERROUS WIREDRAWING AND INSULATING				
	Materials, parts, containers, and supplies	**(X)**	**4 982.1**	**(X)**	**4 264.9**
333102	Copper cathodes, mil lb	175.4	155.1	459.6	305.1
333125	Copper and copper-base alloy wire bar, do	44.6	35.4	500.6	333.4
	Nonferrous metal mill shapes and forms, except castings:				
	Rods:				
335009	Aluminum and aluminum-base alloy, do	424.9	306.0	448.5	231.9
335133	Copper, unalloyed, do	*1 320.5	1 019.1	1 607.5	1 106.1
335135	Copper-base alloy, do	*128.0	116.1	175.3	123.7
	Wire for redrawing:				
335511	Aluminum and aluminum-base alloy, do	105.2	110.4	209.3	100.0
335112	Copper and copper-base alloy, do	*369.6	260.4	283.5	191.7
335608	Other, do	20.6	17.7	(NA)	12.8
	Bare wire, except wire for redrawing:				
335725	Copper and copper-base alloy (electrical), do	494.2	448.5	327.0	266.4
335718	Aluminum and aluminum-base alloy, do	93.3	74.4	44.8	28.7
	All other mill shapes and forms:				
335109	Copper and copper-base alloy, including mechanical wire, do	**40.5	49.8	55.9	61.4
335007	Aluminum and aluminum-base alloy, do	58.7	69.8	62.0	41.8
335609	Other, do	**67.2	56.3	53.3	57.6
335794	Insulated copper wire and cable for further processing (copper content), do	**64.9	65.1	32.2	26.9
333121	Refined unalloyed copper (cathodes, ingot, cakes, slabs, etc., but excluding wire bar), 1,000 s tons	5.4	30.7	4.1	5.7
333976	Refined unalloyed tin, do			1.7	15.1
333113	Copper-base alloy raw materials (ingot, billets, shot, waffle, hardeners, etc.), do	(S)	24.7	9.8	13.6
190024	Copper and copper-base alloy scrap, do	27.0	17.0	(D)	(D)
084911	Natural rubber, 1,000 l tons	(S)	18.2	(D)	(D)
282202	Synthetic rubber, do	*71.8	67.5	62.8	76.1
282104	Plastics resins consumed in the form of granules, pellets, powder, liquid, etc., except sheets, rods, tubes, and shapes, mil lb	*1 097.6	622.8	1 103.1	423.5
228102	Cotton yarns, do	*2.4	7.3	8.9	14.3
970099	All other materials and components, parts, containers, and supplies	(X)	1 177.6	(X)	713.7
971000	Materials, parts, containers, and supplies, n.s.k.[2]	(X)	232.2	(X)	109.0
	INDUSTRY 3398, METAL HEAT TREATING				
	(Materials data were not collected for this industry)				
	INDUSTRY 3399, PRIMARY METALS PRODUCTS, N.E.C.				
	(Materials data were not collected for this industry)				

[1]For some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[3]For 1977, material codes 333404, 333405, 190022, 190025, 335301, and 335405 were included with material code 970099.

[4]For 1982, material codes 333126, 333127, 333128, and 333129 are included with material code 190024.

[5]For 1977, material codes 333126, 333127, and 333128 were included with material code 333129.

[6]For 1982, material codes 333123 and 333128 are combined with material code 333129 to avoid disclosing data for individual companies.

[7]For 1982, material code 335301 is combined with material code 335008 to avoid disclosing data for individual companies.

[8]For 1977, material code 190021 was included with material code 190022.

[9]For 1977, material codes 335301 and 335405 were included with 335008.

[10]For 1982, material codes 333128, 333129, and 333348 are combined with material code 333987 to avoid disclosing data for individual companies.

[11]For 1982, material codes 190021, 190025, and 335100 are combined with material code 970099 to avoid disclosing data for individual companies.

Table 8. Departmental Operations by Subindustry: 1982 and 1977

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Operation	Production-worker hours (millions)			Production-worker wages (million dollars)		
	Total	Establishments with casting department	Establishments without casting department	Total	Establishments with casting department	Establishments without casting department
INDUSTRY 3351, COPPER ROLLING AND DRAWING						
1982						
All departments	32.6	21.3	11.3	322.9	218.6	104.3
Casting (except foundry)	1.9	1.9	–	21.1	21.1	–
Rod mill	2.1	1.7	.4	21.6	17.0	4.6
Wire mill (including stranding mill)	.9	(D)	(D)	8.2	(D)	(D)
Tube mill	3.6	2.6	1.0	32.3	22.7	9.6
Flat products mill	2.9	2.4	.5	32.8	28.2	4.6
Foundry (nonferrous)	.3	.3	–	2.6	2.6	–
Machine shops and tool and die shops	1.5	1.3	.2	16.4	14.7	1.7
Heat treating and annealing	.4	(D)	(D)	3.7	(D)	(D)
Other manufacturing or fabricating departments	2.1	1.5	.6	19.8	15.3	4.5
All other, including service or auxiliary operations	4.4	4.3	.1	47.2	45.8	1.4
Not specified	12.5	4.5	8.0	117.1	42.9	74.2
1977						
All departments	50.5	36.9	13.6	338.7	263.2	75.6
Casting (except foundry)	4.3	4.3	–	31.5	31.5	–
Rod mill	4.0	3.8	.2	28.7	27.6	1.1
Wire mill (including stranding mill)	1.7	1.0	.7	10.4	7.2	3.2
Tube mill	8.7	6.9	1.8	55.1	44.6	10.5
Flat products mill	5.6	4.4	1.2	44.9	37.1	7.8
Foundry (nonferrous)	.7	.3	.4	4.1	2.0	2.1
Machine shops and tool and die shops	2.8	2.5	.3	21.4	19.4	2.0
Heat treating and annealing	.5	.3	.2	2.9	1.7	1.2
Other manufacturing or fabricating departments	2.1	1.8	.3	14.2	12.9	1.3
All other, including service or auxiliary operations	8.5	7.8	.7	57.5	52.6	4.9
Not specified	11.6	3.8	7.8	68.1	26.6	41.5

Operation	Production-worker hours (millions)			Production-worker wages (million dollars)		
	Total[1]	Establishments with melting facilities[1]	Establishments without melting facilities[1]	Total	Establishments with melting facilities	Establishments without melting facilities
INDUSTRY 3353, ALUMINUM SHEET, PLATE, AND FOIL						
1982						
All departments	40.0	34.9	5.1	641.1	571.5	69.6
Melting (except foundry)	4.6	4.6	–	73.4	73.4	–
Sheet and plate mill	13.5	10.7	2.8	235.1	189.8	45.3
Foil rolling mill (excluding conversion or subsequent operations)	2.5	2.0	.5	38.7	33.9	4.8
Extrusion department (rod, bar, tube, pipe, etc.)	(D)	(D)	–	(D)	(D)	–
Tube mill (drawn and welded)	.5	(D)	(D)	4.2	(D)	(D)
Wire, rod, and bar mill (excluding extruded)	(D)	(D)	–	(D)	(D)	–
Electrical conductor department (ACSR, insulated, etc.)	(D)	(D)	–	(D)	(D)	–
Forging and impact extrusions	–	–	–	–	–	–
Foundry (nonferrous)	(Z)	(Z)	–	(Z)	(Z)	–
Machine shops and tool and die shops	2.2	(D)	(D)	36.3	(D)	(D)
Other manufacturing or fabricating departments	2.5	2.0	.5	32.3	28.3	4.0
All other, including service or auxiliary operations	9.2	9.0	.2	142.3	140.0	2.3
Not specified	4.7	4.0	.7	75.5	65.2	10.3
1977						
All departments	50.6	36.3	14.1	480.1	351.2	127.4
Melting (except foundry)	5.5	5.5	–	48.4	48.4	–
Sheet and plate mill	21.4	13.3	8.1	203.9	124.7	79.2
Foil rolling mill (excluding conversion or subsequent operations)	3.5	1.4	2.1	32.2	13.1	19.1
Extrusion department (rod, bar, tube, pipe, etc.)	(D)	(D)	–	(D)	(D)	–
Tube mill (drawn and welded)	.5	(D)	(D)	3.3	(D)	(D)
Wire, rod, and bar mill (excluding extruded)	(D)	(D)	–	(D)	(D)	–
Electrical conductor department (ACSR, insulated, etc.)	(Z)	(Z)	–	(D)	(D)	–
Forging and impact extrusions	–	–	–	–	–	–
Foundry (nonferrous)	(D)	(D)	(D)	(D)	(D)	(D)
Machine shops and tool and die shops	2.0	1.6	.4	19.9	15.8	4.1
Other manufacturing or fabricating departments	4.0	2.5	1.5	22.8	9.0	13.8
All other, including service or auxiliary operations	10.3	9.6	.7	103.3	97.7	5.6
Not specified	2.7	1.6	.9	38.1	35.1	3.0

See footnotes at end of table.

Table 8. **Departmental Operations by Subindustry: 1982 and 1977**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Operation	Production-worker hours (millions)			Production-worker wages (million dollars)		
	Total[1]	Establishments with melting facilities[1]	Establishments without melting facilities[1]	Total	Establishments with melting facilities	Establishments without melting facilities
INDUSTRY 3354, ALUMINUM EXTRUDED PRODUCTS						
1982						
All departments	**38.0**	**17.0**	**21.0**	**344.1**	**184.2**	**159.9**
Melting (except foundry)	1.1	1.1	-	12.9	12.9	-
Sheet and plate mill	(D)	(D)	-	(D)	(D)	-
Foil rolling mill (excluding conversion or subsequent operations)	-	-	-	-	-	-
Extrusion department (rod, bar, tube, pipe, etc.)	7.2	3.4	3.8	68.1	39.5	28.6
Tube mill (drawn and welded)	1.1	.9	.2	15.8	13.0	2.8
Wire, rod, and bar mill (excluding extruded)	.4	(D)	(D)	3.8	(D)	(D)
Electrical conductor department (ACSR, insulated, etc.)	-	-	-	-	-	-
Forging impact extrusions	.5	(D)	(D)	5.6	(D)	(D)
Foundry (nonferrous)	(D)	.3	(D)	(D)	2.5	(D)
Machine shop and tool and die shop	.7	.5	.2	7.9	6.1	1.8
Other manufacturing or fabricating departments	2.7	1.4	1.3	21.0	15.5	5.5
All other, including service or auxiliary operations	3.1	2.2	.9	32.3	27.1	5.2
Not specified	20.7	6.4	14.3	172.3	57.5	114.8
1977						
All departments	**44.0**	**14.7**	**29.3**	**264.1**	**102.7**	**161.4**
Melting (except foundry)	1.4	1.4	-	9.8	9.8	-
Sheet and plate mill	(D)	(D)	-	(D)	(D)	-
Foil rolling mill (excluding conversion or subsequent operations)	-	-	-	-	-	-
Extrusion department (rod, bar, tube, pipe, etc.)	12.7	4.0	8.7	80.7	28.6	52.1
Tube mill (drawn and welded)	(D)	(D)	(D)	(D)	(D)	(D)
Wire, rod, and bar mill (excluding extruded)	-	-	-	-	-	-
Electrical conductor department (ACSR, insulated, etc.)	-	-	-	-	-	-
Forging and impact extrusions	(D)	(D)	(Z)	(D)	(D)	(D)
Foundry (nonferrous)	(D)	(D)	(D)	(D)	(D)	(D)
Machine shop and tool and die shop	1.4	.9	.5	14.2	9.0	5.2
Other manufacturing or fabricating departments	4.1	1.5	2.6	24.7	8.5	16.2
All other, including service or auxiliary operations	3.9	2.8	1.1	26.0	20.8	5.2
Not specified	18.5	2.6	15.9	95.4	14.8	80.6

Operation	Production-worker hours (millions)					Production worker wages (million dollars)				
		With wiredrawing			Establishments without wire drawing department[1]		With wiredrawing			Establishments without wire drawing department[1]
			Without rod mill					Without rod mill		
	Total[1]	With rod mill[1]	With insulating department[1]	Without insulating department[1]		Total[1]	With rod mill[1]	With insulating department[1]	Without insulating department[1]	
INDUSTRY 3357, NONFERROUS WIREDRAWING AND INSULATION										
1982										
All departments	**95.7**	**12.1**	**36.6**	**7.8**	**39.2**	**837.5**	**107.3**	**352.4**	**64.6**	**313.2**
Rod mill	.6	.6	-	-	-	4.7	4.7	-	-	-
Wiredrawing and stranding mill	8.8	2.4	3.7	2.7	-	77.8	21.8	30.7	25.3	-
Insulating and cabling of wire and cable, including sheathing	36.4	4.5	12.5	-	19.4	282.6	40.0	124.2	-	118.4
Electroplating, galvanizing, heat treating, and annealing	.7	.4	.1	.1	.1	6.8	4.1	1.1	.7	.9
Machine shops and tool and die shops	4.5	.9	2.3	.5	.8	52.9	8.2	31.0	4.1	9.6
Other manufacturing or fabricating departments, including armoring	14.1	1.5	5.4	3.1	4.1	107.3	10.8	45.7	22.7	28.1
All other, including service or auxiliary operations	13.7	1.8	7.5	.8	3.6	131.1	17.7	79.6	7.7	26.1
Not specified	16.9	-	5.1	.6	11.2	174.3	-	40.1	4.1	130.1
1977										
All departments	**101.8**	**20.3**	**46.6**	**6.6**	**27.6**	**603.4**	**122.8**	**305.8**	**38.7**	**133.0**
Rod mill	1.4	1.4	(Z)	-	-	9.9	9.9	(Z)	-	-
Wiredrawing and stranding mill	13.1	3.8	6.1	3.2	(Z)	77.4	25.8	34.8	(D)	(D)
Insulating and cabling of wire and cable, including sheathing	37.5	5.8	20.3	-	11.4	225.9	33.6	138.4	-	53.9
Electroplating galvanizing, heat treating, and annealing	.8	.3	.2	(D)	(D)	4.7	1.9	1.3	(D)	(D)
Machine shops and tool and die shops	6.0	1.2	4.1	(D)	(D)	42.1	7.7	30.4	1.2	2.8
Other manufacturing or fabricating departments, including armoring	12.8	3.0	5.5	.5	3.8	68.8	16.8	30.5	3.0	18.5
All other, including service or auxiliary operations	16.8	4.6	8.2	.6	3.4	101.2	25.2	53.3	2.6	20.1
Not specified	13.4	.2	2.2	1.9	8.4	73.4	1.9	17.1	14.2	37.1

[1]Four-digit industry totals are not equal to sum of six-digit subindustry figures due to difficulties in classifying a few establishments at subindustry level.

APPENDIX A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items which were requested of all establishments that were mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) that were not included on the report forms but were derived from information collected on the forms. Section 2 covers supplementary items that were requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in tables 3c and 3d of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies—As discussed in the Introduction, a separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operates at different physical locations, even if the individual locations are producing the same line of goods, a separate report was requested for each location. If the company operates in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on the number of custodial employees, capital expenditures, inventories, or any shipments from inventories during the portion of the year the plant was in operation.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction to Part 1 of the General Summary subject report.

Employment and related items—The regular report forms requested separate information on production workers as of a payroll period for each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees—This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period ending nearest the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers—This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees—This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment who are engaged in the construction of major additions or alterations to the plant and who are utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls was also requested of auxiliary units (e.g., administrative offices, warehouses, and research and development laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the general summary and geographic area reports and in the final bound volumes as a separate category.

Payrolls—This item includes the gross earnings of all employees on the payroll of operating manufacturing establishments paid in the calendar year 1982. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, all bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers

of corporations, but excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payroll of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours—This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials—This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, components, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed—In addition to the total cost of materials, which every establishment was required to report, information was also collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the specific materials consumed is shown in table 7 if appropriate to the industry. Establishments consuming less than a specified amount (usually $10,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as "not specified by kind." (See the Introduction for the importance of administrative records in the industry.)

Value of shipments—This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of "all other costs" (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products—As in previous censuses, data were collected for almost all industries on the quantity and value of individual products shipped. In the 1982 census program, information was collected on the output of approximately 11,000 individual product items. The term "product," as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term "product" as used in the marketing sense. In some cases it may be much more detailed and, in other cases, it is more aggregative. For example, "pharmaceutical preparations" was distributed into over 100 items; whereas, "motor gasoline" was reported as a single item.

Approximately 6,000 of the product items were listed separately on the 1982 census report forms. Data for about 5,000 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1982 for these items, as derived from the commodity surveys, are shown in the "products shipped" table (table 6a) together with the tieline total value collected in the census for reconciliation purposes.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1977 information is presented for most products.

Typically, both quantity and value of shipments information was collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers was also collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production was also collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products—To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the

individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Introduction, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1982 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, and the like. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments—The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication, since the products of some industries are used as materials by others. With some important exceptions, such as for motor vehicles and parts, this duplication is not significant at the four-digit industry level. However, it is significant at the two-digit and three-digit industry group level because these totals often include industries that represent successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the "Food" group and the addition of pulp mills to paper mills in the "Paper and Allied Products" group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the census of manufactures.

Value added by manufacture—This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

Because of the change in instructions for reporting inventories for 1982, the 1982 figure for value added is not strictly comparable to prior-year data. This is explained more fully in the inventories section below.

"Value added" avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures—For establishments in operation and establishments under construction but not yet in operation, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures exclude that portion of expenditures leased from nonmanufacturing concerns, new facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers were also requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred to the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; i.e., it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form and is subject to sampling error (see table 3d). The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in both tables 3a and 3d. The figure in table 3a is a census universe total and may differ from the results of the ASM sample shown in table 3d. Since the figures in table 3d are subject to sampling error, they are not considered as reliable as the universe figures.

End-of-year inventories—Respondents were asked to report their 1981 and 1982 end-of-year inventories at cost or market. Effective with the 1982 Economic Censuses, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications. Inventories and value added data estimated on a basis comparable to the historical data, using the reported information for 1982, are shown in footnote 4 of table 1a. However, the end-of-1981 figure shown in this footnote may differ from the corresponding value published as part of the 1981 Annual Survey of Manufactures.

This difference at the four-digit SIC level is due primarily to the effects of industry shifts. As described in the Industry Classification of Establishments section of the Introduction, ASM noncertainty plants are allowed to shift from one industry to another in a census year; whereas, they are "frozen" in a particular industry in ASM years. Other explanations for this difference include the effects of sampling and processing errors and revisions to end-of-1981 data reported by respondents.

In using inventory data by stage of fabrication for "all industries" and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw

materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and "all manufacturing," which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios—These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

As noted in the Introduction, an establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

Supplemental labor costs—Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees. While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records do not generally provide reliable figures on net employee benefits of these types.

Cost of purchased services—ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, and communication services. Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property are also included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force are also excluded.

The response coverage ratio shown in table 3d for each of the three types of purchased services listed above is a measure of the extent to which respondents reported for each item. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight; see section 3) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Electric energy used for heat and power—Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy and quantity of generated-less-sold electric energy were collected only on the ASM forms. The cost and quantity of purchased electric energy represent the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Beginning- and end-of-year depreciable assets—The data encompass all fixed depreciable assets on the books of establishments at the beginning and at the end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as patent rights and royalties. Also excluded are land and depletable assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures—The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Breakdown of new capital expenditures for machinery and equipment—ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category "automobiles, trucks, etc., for highway use" is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

The "not specified by kind" or n.s.k. item for expenditures for new machinery and buildings, shown in table 3d, represents the total machinery and equipment expenditures for establishments that did not break down their expenditures for the three specific categories. This means that for most industries the specific categories are understated.

Retirements—Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1982. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent was also requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Rental payments—This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company, and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciation charges—This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

APPENDIX B.
Annual Survey of Manufactures (ASM) Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The Annual Survey of Manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 55,000 manufacturing establishments selected from a total of about 225,000 establishments. These 225,000 establishments represent all manufacturing establishments of multiunit companies and all single-unit manufacturing establishments with five employees or more tabulated in the 1977 Census of Manufactures. This mail portion is supplemented by a Social Security Administration list of new manufacturing establishments opened after 1977. The individual establishments were defined as the sampling unit for this sample. This is a change from the previous ASM sample when companies were used as the sampling unit. The implication of this change is that the probability of selection of any establishment relates only to the size of the establishment itself and is independent of the size of the company with which the establishment is affiliated. The efficiencies associated with the change to an establishment sample have made it possible to reduce the mail sample panel from 70,000 establishments in 1978 to 55,000 establishments in the current panel.

The nonmail portion of the survey includes all single-unit establishments that were tabulated with less than five employees in the 1977 Census of Manufactures. Although this portion contained approximately 125,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of other Federal agencies. This administrative record information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under special conditions, which safeguard the confidentiality of both tax and census records. Estimates for data for these small establishments were developed using industry averages in conjunction with the administrative information.

The corresponding estimates for the mail and nonmail establishments were added together, along with the adjusted base-year differences as defined in Description of Estimating Procedures below. The remaining description of the survey sample relates only to the mail portion of the ASM sample.

All establishments with 250 employees or more in the 1977 census were included in the survey panel with certainty. These establishments collectively account for approximately 65 percent of the total value of shipments for manufacturing establishments in the 1977 census. Smaller establishments were sampled with probabilities ranging from 1.000 down to 0.005 in accordance with mathematical theory for optimum allocation of a sample.

The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. For establishments included in the 1977 Census of Manufactures, the measure of size depended directly upon each establishment's 1977 product class values and the historic variability of the year-to-year shipments of each product class. Roughly equivalent measures of size were assigned to postcensus birth establishments based on their industry codes and anticipated payroll and employment.

The method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight to differences in employment, value added, and other general statistics, for these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of establishments into and out of a given sample panel without introducing a bias into the survey estimates.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1978-1981 were computed using a modified "difference estimate" formula. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1977 census published number for an item total and the linear ASM estimate of the total for 1977. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

This base-year difference was then adjusted to reflect the estimated growth at the four-digit or, in the case of product classes, five-digit based Standard Industrial Classification (SIC) level from 1977 to the year of the survey; for example, 1981. It should be noted that due to processing constraints, the growth factors lagged one year; i.e., if 1981 is the survey year, they were not based on the estimated growth from 1977 to 1981 but rather the growth from 1977 to 1980. This one-year lag had negligible effect on the estimates, particularly at the total manufacturing level where the adjusted base-year difference accounted for less than 1 percent of the estimate for total value of shipments.

These adjusted base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail establishments, to produce the estimates for the years 1978-1981. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

The 1982 sample data included in table 3d were also developed using difference estimates. However, since the universe totals for the census year (1977 or 1982) were not known, a modification of the procedure described above was necessary. For each item in table 3d, except purchased services and breakdown of expenditures for new machinery and equipment (see further description in appendix A, section 2), linear

estimates of the publication totals from the ASM mail sample were adjusted by the difference between imputed census totals and the corresponding ASM mail sample estimates of these imputed totals. These imputed totals are obtained by applying industry average ratios to control item values at the establishment level. For example, an imputed total beginning assets figure is obtained by multiplying each establishment's total value of shipments by the industry (four-digit SIC) average for the ratio of beginning assets to shipments.

Separate estimates for the nonmail establishments were not developed. However, their contribution to the publication estimates is reflected in the difference adjustment.

The method of inventory valuation percentages included in table 3c was developed using both complete census information and ASM estimates. The percentages for the four major categories (LIFO, non-LIFO, valuation method not reported, and LIFO reported without associated value and reserve) were derived from the complete census and correspond to the values included in table 3d. The percentages for the specific non-LIFO methods of valuations (FIFO, average cost, specific costs, etc.) are ratio estimates developed from the ASM in conjunction with the census universe estimate for the total of the non-LIFO methods.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. Except for table 3c, they are presented in the form of relative standard errors, the standard errors divided by the estimated values to which they refer. In table 3c, "absolute" standard errors of the estimates are presented.

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total and about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors would also occur if a complete canvass were to be conducted under the same conditions as the survey.

Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

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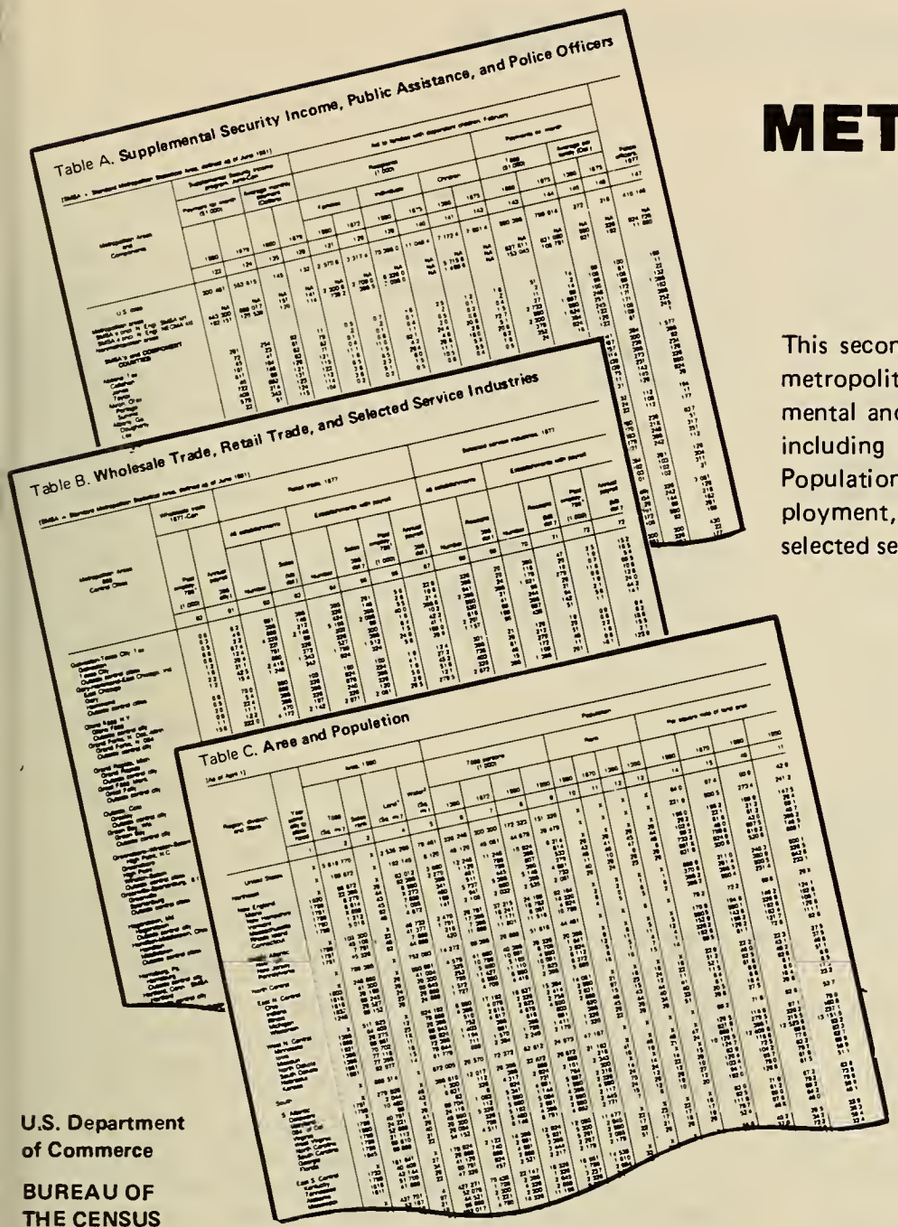

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